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R. Ottolengul, M.D.S., D.D.S., CC.D. Editor 80 West 40th St. new York

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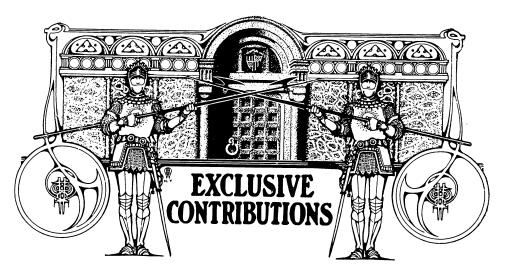
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Dental Radiography.*

By Howard R. Raper, D.D.S.,
Professor of Operative Technic and Roentgenology at Indiana Dental College,
Indianapolis.

CHAPTER IX

Purchasing a Radiograph Outfit.

Before considering the purchase of a radiographic outfit we would better settle the question of who should do dental radiographic work. Should it be done by specialists or the general practitioners of dentistry? Three years ago it was my habit to answer this question unhesitatingly, and say "by the specialist."

My reasons for believing that dental radiographic work should be done by specialists were: (I) I was of the opinion that the radiograph was not particularly useful in the practice of dentistry except in rare cases, and (2) there being no text-book on the subject, proper self-education in the art was difficult, almost to the point of being impossible.

As I see the situation to-day, however, the use of the radiograph is indicated in so many cases that it would be rather impracticable for the general practitioner to refer all radiographic cases to the specialist. A further objection to referring all radiographic cases to the specialist is that, while said specialist may be a very expert radiographer, his knowl-

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edge regarding dental subjects may be so meagre that he cannot interpret the radiograph correctly after it is made. Notwithstanding these drawbacks to the practice of referring patients, I can understand the attitude of the *busy city* dentist, who does not care for, or dislikes radiographic work, and therefore would prefer to refer his cases to a dental radiographic specialist.

But no matter how busy he may be nor how much he may dislike the work, the dentist in the smaller cities and towns, where there is no specialist in the same town, should be able to do at least the simpler radiographic work on films himself. Otherwise the work will not be done at all, because of the inconvenience incident to making a trip to the city specialists, and in consequence the best dental services will not be rendered. It is an exceptional case indeed when a general practitioner of dentistry develops a degree of skill and proficiency equal to that attained by the specialists—the man who devotes all of his time to radiographic work—and the more difficult work on large plates, necessitating a pose in the recumbent position, and stereoscopic work should therefore better be referred to specialists.

My second reason for having formerly been of the opinion that all radiographic work should be referred to specialists—viz., the difficulty of self-education—I hope is no longer a good reason, for I have tried, in this work, to supply a text-book which will enable the man who wishes to take up dental radiography to do so without wasting a great deal of time and energy reading books on electricity, photography and general X-ray work.

Some manufacturers make such statements regarding radiographic work as, "The work is extremely simple and can be mastered in a few minutes; in the time it will take to glance over our instructions which we send with each outfit." As a result of such misrepresentation men have taken up the work in profound ignorance and so have endangered their own and their patient's health and life. Self-education to do the simplest work intelligently, safely and well is not, I assure you, a matter of a few minutes study, but of many hours.

X-Rays as a Cherapeutic Agent. In passing let me mention X-rays as a therapeutic agent in dentistry, and condemn them as useless. It is so difficult to measure the dose in X-radiation that it is only by long and usually soul-trying and disastrous experience that a man becomes competent to use X-rays as a therapeutic agent. The

work should be done by specialists only. General practitioners of either dentistry or medicine are liable to do more harm than good when attempting therapeutic X-radiation.



X-rays have been employed in the treatment of pyorrhæa alveolaris, but no results have been obtained that have not been gained by the use of the easier used, better known, less dangerous drugs, commonly applied. The incurable cases remain incurable, whether the X-rays are used or not, and, in the cases in which disease is due to local irritants which can be removed, recovery takes place as a result of the universally known methods of treatment—again, whether the X-rays are used or not. X-rays are used also for the treatment of cancer of the mouth and leukoplakia, but such diseases are comparatively rare and if treated with the X-rays, the work should be done by specialists. As far as I know, this is the extent of the therapeutic application of the X-rays to diseases of the mouth—an extremely limited application.

In short, my opinion of the value of the X-rays in the practice of dentistry is this: as a means of making dental radiographs they are invaluable; as a therapeutic agent, they are worse than useless.

Requirements of an X-Ray Outfit.

Of what should a dental radiographic outfit consist? Naming the bare necessities for the simplest work—to which the operator may add, as he does the work and feels the need of expediting apparatus—we have: (1) Photographic paraphernalia and sup-

plies, including a dark-room lantern, trays, a glass graduate, prepared developing powder or solution, prepared fixing powder, and films; (2) an X-ray machine or coil; (3) an X-ray tube; (4) a tube stand; (5) a lead screen.

All the photographic paraphernalia and supplies, except the films, may be purchased at any photographic supply house. Regarding films see pages 641, 642 and 643, ITEMS OF INTEREST, September, 1911. Regarding the dark-room lantern see pages 569 570, ITEMS OF INTEREST, August, 1911. Regarding developing solutions see pages 576 and 577. ITEMS OF INTEREST, August, 1911, and page 658, ITEMS OF INTEREST, September, 1911. Regarding fixing solutions see page 579. ITEMS OF INTEREST, August, 1911. The expenditures for photographic paraphernalia and supplies need not exceed \$5 at most.

There are three kinds of X-ray machines for the prospective buyer to choose from: the transformer or interrupterless coil (Figs. 15 and 38), the induction coil (Fig. 13), and the high frequency coil (Fig. 14).

Interrupterless Coils.

The transformers are the most powerful and most expensive X-ray machines on the market. With them small, film radiographs may be made in an exposure of one second or fraction thereof. The

finished radiograph from such an exposure is no better than one made with a less powerful machine from a longer exposure. Personally, I can

887



see no particular advantage in shortening the exposure beyond two or three seconds. The transformer is for the specialist or general practitioner who is fortunate enough not to have to consider seriously the expenditure of a considerable amount of money. Transformers range in cost from six hundred to over a thousand dollars.

See summary of conditions under which Fig. 117 was made, page 740, Items of Interest, October, 1911.

Induction coils are made in various sizes. The largest ones rival the transformers in power, the smaller ones are not nearly so powerful. See summaries of conditions under which Figs. 81, 111, 97, 99, 103, 100, 105, 118, 119, 120 and 121 were made, ITEMS OF INTEREST, October, 1911.

Induction

Induction coils range in price from about \$200 to \$600.

Coils. Unless he need not consider the expenditure of money I would advise the general practitioner of dentistry who wishes to do only the lighter, simpler work on films to buy either a small induction coil or one of the best high efficiency, suitcase coils. If his supply current is direct, I would say choose the induction coil; if alternating, the high frequency coil. My reason for this discrimination is that when the induction coil is operated on an A. C. circuit the current must first be passed through a rectifier (Figs. 27 and 28). The purchase of the rectifier adds to the expenditure, and its use detracts from the efficiency of the coil. When the high frequency coil is used on the D. C. circuit a rotary converter (Fig. 36) must be used. This also adds to the expenditure and cuts down the efficiency of the coil. Some suitcase coils are advertised to operate on either a direct or alternating current, without a rotary converter for the latter. A vibrator interrupter (Fig. 22) is used on these machines. Less efficiency is lost with the rotary converter than with the vibrating interrupter.

Most high frequency, suitcase, X-ray coils are built to sell; not to make radiographs. Only the most powerful of the type are capable of doing good dental radiographic work. I would advise the prospective purchaser to insist on a practical demonstration before investing. What may be expected from the more powerful of these coils may be learned from the study of the summaries of the conditions under which Figs. 112, 113, 114 and 115 were made, ITEMS OF INTEREST, October, 1911.

The high frequency X-ray coils range in price from about \$150 to \$200.



X-Ray Cubes. A six-inch X-ray tube is the proper size to do dental radiographic work. Only the tubes with a regulating chamber are popular to-day (see Fig. 44). The price of the six-inch X-ray tube is well

standardized and is \$20.

Cube Stands. There are a great variety of tube stands to choose from (Figs. 59, 60, 61 and 63). They range in price from \$10 to \$150. The small tube stands or holders which are fastened onto the suit-

case coils do not permit of a sufficient range of movement to adjust the tube properly, nor are they substantial enough to hold the tube firmly immovable.

Protection Screens.

Lead screens (Figs. 314 and 315) cost from \$10 to \$30. Even the best lead screens are not backed with lead thicker than 1/16 inch. The writer operates back of a "home-made" screen the lead of

which is ½ inch thick and the 3x3 inch window the lead glass of which is 1½ inches thick. The material for this screen cost \$15. It is not a particularly beautiful piece of furniture, and if the time spent in building it be considered worth anything, I did not save money, but the finished screen offers more protection than any I know of on the market.

A man may figure from the foregoing approximately what it will cost him to buy the kind of an outfit he wishes to purchase.

Let us take a concrete example of a general practitioner who wishes to make the minimum investment and obtain an outfit with which he may do the lighter work on films, and perhaps occasionally make a large plate radiograph. His photographic paraphernalia costs say \$4. Assuming that his supply current is A. C., he may purchase a high frequency radiographic coil for \$150. An X-ray tube costs \$20, a tube stand \$12. He makes his own screen the material for which costs \$15. He spends \$201 and has an outfit with which he can make small film radiographs in a 10 to 20 second exposure and large plate radiographs in about one minute.





Che Present Method of Root Canal Creatment.

By WALTER H. HOYL, D.D.S., Dawson, Ga.

The ideal treatment of exposed dental pulps has been the zenith of thought in dental therapeutics for more than a half century, and has been the subject of treatises by many learned members of our profession. However, the author, who is comparatively a neophyte, offers no apology for presenting to his fraternity another paper on this subject. I find that the question of treating an exposed dental pulp is as live a wire to-day as it was fifty years ago.

Of all the tested dental filling materials those intended for root canals have proven most inadequate; none so far have possessed the requisites of being infallible. The American Text Book of Operative Dentistry gives us various materials for this purpose, such as gold, tin, lead, oxychlorid of zinc, gutta-percha, orange wood points, asbestos and cotton. Is the infallibility of our work along this line due to the material used? Or is it due to the want of skill on part of operator? Or is it due to the anatomical condition of the tooth?

We have operators who possess the skill to fill to the apex any tooth with an accessible canal, with one or another of the many materials given us, yet we cannot eliminate pericemental inflammation, and the so often found alveolar abscess.

We are taught, and so far as I know it is one thing in the study of operative dentistry that is not disputed, that the pulp of a tooth, in reaching the apex, ramifies in small branches collaterally; that these ramifications reach the peridental membrane through minute canals; and these canals are found invariably impossible of access.

This being the case, the only logical conclusion to reach is this: Owing to the anatomical condition of a tooth we must insert into the pulp chamber a permanent disinfectant. I use the word permanent in this sense; we are to have it as nearly permanent as we know how to make it. The purport of this paper is to give you the formula for a mummifyer and disinfectant which the writer and numerous others have found adequate.

Dr. Owen E. Horton, of Brooklyn, N. Y., read before the Second District Dental Society, October, 1899, a paper, the title of which was "Pulp Mummification." Dr. Horton found the formula in a November Cosmos of 1895 in an article written by Dr. Sodenborg, of Sidney, Australia. Dr. Horton had used the formula for four years when he wrote his article. After using this formula in my practice for two years, during



which time I kept an accurate record of each case, I wrote an article on the technique for the *American Journal of Dental Science*, issue of July, 1907. From 1905 to the present date I have talked and corresponded with numerous dentists concerning the formula and technique as given the profession in the above-mentioned journals.

It is surprising to me to know that such a small percentage of the dentists have devoted any time whatever to the study of this subject. If find a majority of the operators are using daily in their practice the method of cocaine or arsenic; enlarging canals with G. G. drills or medicaments, and filling with cement or gutta-percha points. Some few are using a canal filling material, of the ingredients of which they are ignorant, it being sold to them under some trade name. This expression is often heard: "Before filling I treat the canals with Dr. Buckley's Compound." Good for Dr. Buckley! The name of Buckley should occupy a loving spot in the heart of every dentist.

In discussing Dr. Houghton's paper on pulp mummification, Dr. J. Foster Flagg said: "The first attempts at this were made with creosote, and almost every canal filling then made, always with gold, was preceded with a tiny pellet of natural cotton (absorbent cotton was then not known), saturated with this universally used medicament. The object of this was to prevent, as far as possible, the putrescence of any remaining portion of dental pulp, which was, practically 'mummifying' it thus much."

Mummification is an art as ancient as history.

When for centuries the Egyptians could mummify the entire human body, cannot we as dental practitioners mummify as small a portion of the anatomy as a dental pulp?

I received a letter from Dr. Houghton in 1907 in reply to an inquiry concerning his article in Items of Interest in 1897, in which he wrote most enthusiastically of this treatment. One recent change he had made and that was the addition of formalin.

A few days ago in talking with Dr. Robert Stewart, of Dawson, Georgia, who has actively practiced here for more than twenty years, he said: "I carefully studied the literature you gave me on mummification, and since adopting this method of treatment, the tedious part of my work has been reduced fifty per cent. During the four years that I have used it, only one case has given me trouble."

The formula as used by Dr. Houghton, and so quoted in his paper, is as follows:

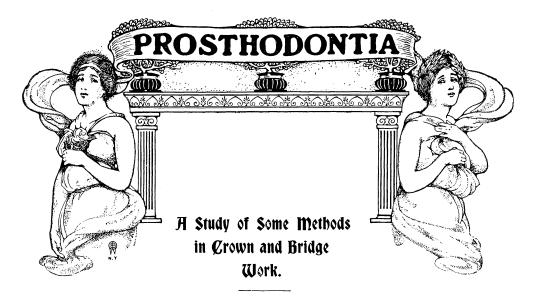
Thymol,
Dried Alum,
Glycerol, equal parts,
And Oxide of Zinc, q. s. to make a stiff paste.



Thymol, the antiseptic agent; dried alum, the best mummifying or tanning agent; oxide of zinc, the white color retaining medium; and glycerol, the penetrating and binding agent.

To the above formula I have added formalin, and my method of procedure is as follows: After applying arsenic, remove contents of the pulp chamber with a number four or six sterilized bur. With water syringe wash out cavity with clean water, dry with alcohol, swab cavity with a small piece of cotton saturated with formalin. Take up on your cement spatula enough of paste to fill pulp chamber; incorporate with this a small quantity of formalin. Fill entire pulp chamber with paste, sealing it with cement, and complete operation with whatever filling material may be indicated. Probably the easiest method of applying the paste is to press it into place with a pellet of cotton heid in your plyers





By Dr. George Evans, New York.

Read before the New Jersey State Dental Society at Cape May, July, 1912.

In this paper I will discuss the merits of certain phases of construction, and it is my intention to be as brief and concise as possible. I will not introduce my subject with any general history of the art. I will endeavor to confine my remarks to that which is relevant to my subject. I will discuss forms and methods of construction, the ideas of others and some of my own, and at times a modification or combination of both. To claim novelty for others or myself in anything I will present or describe would be uncertain; so many thousands are practicing the art and a percentage constantly experimenting. Credit, though, properly should be accorded to him who is first to present to his profession a novel idea or method; not to one who claims he has practiced it, and figuratively speaking, has kept his light hidden under a bushel.

What I will first discuss is the capping of the end of a root to support a porcelain-faced crown. I think I can safely contend that this is the most important part of the construction in crown work, for no matter how artistically the rest may be performed, the durability and health of the membranes at the cervical section and ultimately even the appearance depends upon it. Of a hundred crowns, as put on by prac-



titioners generally, whom I will class as of average skill, how many of these operations will stand the test of expert professional examination? I think you will agree with me that the percentage would be small.

Now let us consider what is the reason. I think you will answer, "Improper preparation of the end of the root and faulty construction and adaptation of the cap." The first mentioned I consider attributable generally to carelessness, and the latter to lack of skill, or maybe to both reasons combined.

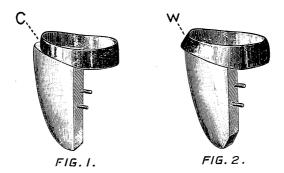
I will not discuss root preparation more than to mention that when a collar is to be first fitted as in the construction of a collar-cap, the sides of the root should be shaped nearly straight; only slightly beveled; and when a stamped cap, or one on the Litch style, is to be adjusted the sides should be given much more of a bevel, or the end of the root trimmed to an oval form. In my experience and observation, imperfectly fitted collar-caps are largely attributable to the fact that many never become skillful in the adaptation of collars to the sides of the ends of roots. To such I suggest the adoption of the stamped or oval cap, to which later I will again refer.

The gold most generally used for collars is coin gold, or 22 K. plate, as prepared by dental sup-Collars for Caps. ply houses. Years ago I became convinced that these alloys are not the best suited. This opinion was caused by the difficulty I experienced in many cases in effecting a close adaptation. A preferable method I found was to form the collar of thin platinum, 38 to 40 gauge, according to the size of the root, using very thin platinum on such as a lower incisor root. This thin platinum in all cases is adapted accurately to the form of the root easily, in comparison to gold alloys. When the platinum collar has been fitted I flow pure gold over the outer surface to reinforce and strengthen it. This I find is most quickly done by pasting with a spatula some moistened fine marble dust on the inside of the collar, holding the collar with a small pointed clamp and melting the gold in small pieces at a time until the collar is encircled. Marble dust I prefer to whiting, as it is immediately removed by dipping in water. The rest of the construction of the cap can be continued in the usual manner.

Another method is to solder transversely over the end of the collar a piece of thin platinum to form the cap in the usual manner, then shape up the sides and top of the cap with wax to the form desired and cast pure gold over the entire cap. Some very creditable specimens were exhibited at the New York State Dental Society recently, made in this manner by Dr. Thomas H. Roche. Caps for removable bridgework can be made as described.



In quite a number of collar-crowns with porcelain fronts we find the front, when fitted, extends over the edge of the cap at the cervical section, as represented in Fig. 1 at C. This can be easily remedied in the caps described by extending the wax at that point, as shown in Fig. 2 at W, before casting the gold on the cap, or by applying an extra amount when the collar is soldered. When the porcelain front has been soldered to the cap the gold can be trimmed to the surface of the porcelain at that part. The presence of a gap, such as is shown at C in Fig. 1, will tend to cause shrinkage of the gum margin as in cervical erosion of a natural tooth.



For all-gold crowns this platinum gold collar which I have described can be used to form the crown by making the collar deeper. When a platinum cap is used to cast on for such teeth it is well to first flow a little pure gold around the extreme cervical edge of the collar, as at times in casting, the gold fails to perfectly cover the platinum at that part.

In casting pure gold over a platinum cap made in sections, the sections of which are united with pure gold, this previously used gold is again fused and a film is liable to be forced inside the cap through the seams. The amount is seldom sufficient to interfere with accuracy in the fit of the cap. By burnishing the seams when the cap is in position on the end of a root before the casting, then removing and heating the cap to a white heat and repeating the operation two or three times, the parts will be very closely united and the gold almost disappears. Dr. Herman E. S. Chayes, to avert this trouble, recommends soldering the seams of the cap with 25 per cent. platinum and gold solder, using the compound blow-pipe to do the soldering.

The objections at times to the above method of construction for large all gold crowns is that they are extremely heavy and correspond-



ingly expensive. I recently had a large upper molar crown made by this method—weight nearly 6 dwt. of metal. As the roots of the tooth had just undergone considerable treatment, I feared the constant weight would be detrimental, so I constructed a less heavy form of crown.

Advantages of Platinum for Collars.

One of the many advantages of platinum collars, as I have described, is that the thin platinum which almost entirely forms the edge of the collar admits of the most accurate and close adaptation to the cervix of a root or crown. This is

owing to the fact that platinum, being a very tenacious metal, can be trimmed down to form an extremely thin edge and one not fusible in any subsequent part of the work.

The next subject I will discuss is the merits of porcelain in contradistinction to metal in contact with the membranes of the gums.

Merits of Porcelain. A very necessary requirement in crown and bridgework is that we place in contact with the membranes of the gums and mouth materials which will offer the least possible cause for irritation. Of

the metals, platinum stands first in resistance of chemical action and maintaining an unaffected surface; therefore it is least inclined to disturb the health of membranes in which it is placed in direct contact. Gold in our use stands next.

Alloys of both metals rank proportionately. Porcelain, of all the materials, stands pre-eminent. In fact, I cannot conceive of any substance that could more fully answer so many requirements. It resists chemical action and presents a surface to which extraneous matter does not easily adhere.

Advantages of Porcelain in Grown Work.

With collar crowns on the front teeth, there is a tendency to absorption of the gum margin at the labial side and exposure of the metal even with wellfitted collars. This does not occur immediately, but it invariably will in time, even when the operator

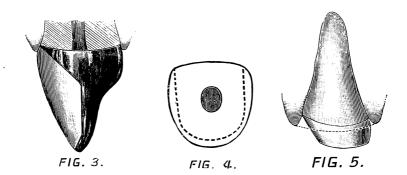
effectually succeeds in hiding the metal when the crown is constructed. Now let us consider what is the cause, principally when the details of construction have been properly carried out. We will incline to attribute it to the presence of a foreign substance under the gum margin, instead of the natural tooth. The object, therefore, should be to replace the removed tooth structure, with that which will be most acceptable and benign in its presence. In these respects porcelain is the material. As to the metals the absorption will progress in proportion as the collar is composed of alloys of the baser metals. In contra-distinction to metal, porcelain with its other properties presents an unalterable surface.



It is for these reasons that of late years I almost invariably dispense with metal at the labial side of the root, when construction will properly permit, and place the porcelain front in its place. This is accomplished when a collar cap has been constructed by removing the labial side of the collar and beveling off that part of the root, placing in the porcelain front as shown in Fig. 3.

Points in Construction.

When crowns are to be so constructed respecting the porcelain front, whether a collar-cap, stamped cap or cap for Litch crown, I give the end of the root the general form shown in Fig. 4—a right cen-



tral incisor. The dark line shows the original form, the dotted line the altered one. Fig. 5 is a side view. The reason I have inclined to the use of such a form of crown is that of late years I find lady patients strenuously object to the appearance of gold in operations.

In crowns such as described, the joint of the porcelain to the labial surface of the root should be accurately made, and the edge of the porcelain front should not extend beyond the line of the surface of the root. If the edge of the porcelain extends at point beyond the root I trim the porcelain to the exact form. For that purpose I temporarily expose the end of the root with a gutta-percha packing, or cement on the crown with gutta-percha cement, leaving a surplus to press up the gum margin at the labial side. I next remove the packing, adjust the crown on the root, and with a small-pointed cone of carborundum or "Gem" trim the porcelain to the level of the sides of the root. The gum margin having been pressed up, if any abrasion occurs it will be slight, and in healing the cicatrical tissue will tightly embrace the porcelain.



Porcelain in Contact with Cissues.

The manner in which tissues will accept and embrace a smooth porcelain surface is evidenced in a case where the shank of a porcelain tooth supported by bridgework is inserted into the hole in the gum where a tooth has been just extracted or

lost by pyorrhea, and in cases of pyorrhea where Dr. M. L. Rhein has substituted porcelain for palatal molar roots which he has amputated. I have lately been using a porcelain inlay in cases where decay has de-



F/G.6.

stroyed a portion of the roots between the bifurcation of molars to fill and block up the space. I find that the pocket being removed the tissues for the time at least again embrace the parts. Fig. 6 shows a case lately so treated.

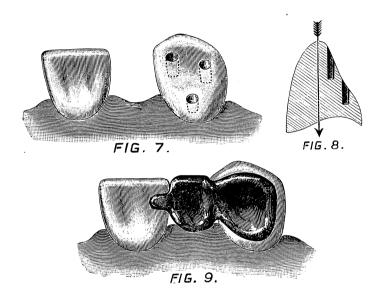
In bridgework I will briefly say I prefer the porcelain of the bridge teeth or dummies to rest on the gum rather than the metal, as there is no corrosion or irritation.

Replacement of an Incisor. The next subject I will discuss is the replacement, say of an incisor, by bridgework, when all the other teeth are present and in fairly good condition, without removal of the pulp of one of the adjoining teeth. You are all acquainted with

a number of methods. The one I present is not new except in some of the details of attachment, for it is in principle the Litch method, published years ago. To describe it, I will take a typical case, as illustrated in Fig. 7, in which a lateral is missing. I trim the palatal side of the cuspid only sufficient to level the surface and leave a slight space between it and the occluding teeth. I next drill three holes, No. 20 gauge, di-



rectly in the line of the root, at the points indicated in Figs. 7 and 8. The holes at the approximal sides are to occupy that section of the tooth structure, such as is generally included in cases of approximal decay which does not expose the pulp. At the cervical palatal section the hole can only be a shallow one. At the angle at which these pins will be placed in the tooth structure it is seen that the line of pressure in use will be



against their displacement. A little plate of platinum, 38 gauge, is swaged and fitted and the pins then soldered in position with pure gold. The plate is again fitted, the edges trimmed to the proper size and shape and a little more pure gold flowed over the entire surface. Next the plate is again fitted, the porcelain tooth properly adjusted, removed with the plate and connected with solder, some of which is flowed over the plate to additionally strengthen it. A spur may be allowed to rest on the central as illustrated in Fig. 9.

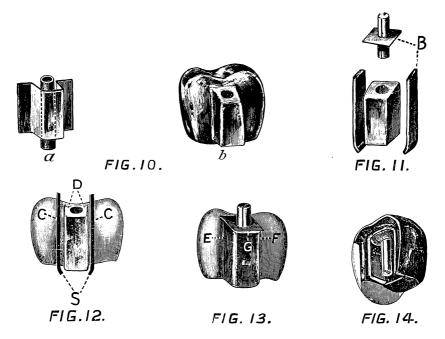
Removable Bridge Attachments. I will close with a description of a removable bridge attachment which will not require removal of the pulp of the abutment tooth. I have used and examined various forms of these attachments, but I do not consider they fully meet the requirements.

How much, if any, I have improved on them is for you to decide. The



form I present is a combination of the post and spring principle in which you get some of the advantages of both. I have but recently devised it. Have had but a limited experience in its practical use, but it seems so far to have met the requirements. You will find it illustrated in the following figures.

The construction is as follows: Fig. 10 shows the side of an all gold crown on which is soldered what I term the box. Fig. 11 shows



the sectional ununited parts. A split post is first made with a platinum tube; the tube is placed in a four-sided right angle shaped piece of thin platinum, as shown at a, Fig. 10, invested and coin gold melted around it. The square box is next soldered to the side of the gold crown, or any other style of crown that may be used. The split post next has a platinum cap B, Fig. 11, soldered to it to fit across the end of the box at D, Fig. 12. Two pieces of clasp gold C.C., Fig. 12, 24 gauge, are fitted to the sides of the box and soldered to the cap. The ends of the spring pieces of gold are bent to catch over the end of the box at S. The whole is then enclosed with a piece of gold plate, pure or nearly so, that will extend from E to F, Fig. 13, and soldered around the cap at G. In the soldering, the gold is flowed over the gold plate on the palatal side to stiffen its surface. When the artificial tooth is in place the buccal side



will be reinforced by the solder used to attach it, and also by the presence of the artificial tooth. The post, which is a split one, steadies the whole attachment. The side springs slip over the rounded upper edge of the box case and glide down the slightly diverging sides, and then slip to position over the edges at the ends of the box, which are only slightly rounded, thus rigidly holding the attachment in position until enough upward force is applied to bring the ends of the spring again up on the sides of the box. Fig. 14 shows attachment complete.

Special Impression Crays for Special Cases.

By C. EDMUND KELLS, D.D.S., New Orleans, La.

It is common practice, I believe, for an operator to cut and bend to the best of his ability, the ordinary Britannia impression tray to fit unusual cases, it being generally considered that the more nearly the cup fits the case in hand, and thus the less impression material used and the more evenly it is distributed, the better the result to be obtained.

Far better results may be obtained, however, by making special cups for such special cases, which may be done readily and expeditiously as follows:

In Fig. 1 is shown an ordinary case in which the posterior teeth only are missing, and which no regular cup will "fit" at all satisfactorily.

This model, imperfect as it is, is all that is at first necessary, and was made from a hastily taken impression in compound used in an ordinary tray, ill fitting as it was.

Upon this model a wax tray is made as shown in Fig. 2.

The under side of this pattern is then slightly oiled (which, however, is not necessary), covered to a certain extent with plaster and then inverted into more plaster previously placed upon a slab or board. As soon as sufficiently hardened it is trimmed up as shown in Fig. 3.

This is then varnished (first shellac, then sandarac) and the upper half of mold completed with plaster as seen in Fig. 4.

The two halves are next readily separated, the wax picked out—and here is an important step, the wax must be *picked out* as stated; the mold must not be heated or boiled out.

The next step is also most important. From the outer edges of the mold, small air vents are made with the point of a knife and a gate or gates made for pouring the metal. One gate may be cut at the end of the handle, as shown here, or two gates may be used, the one at each heel (as in Fig. 5), and this is usually preferable. While these gates and



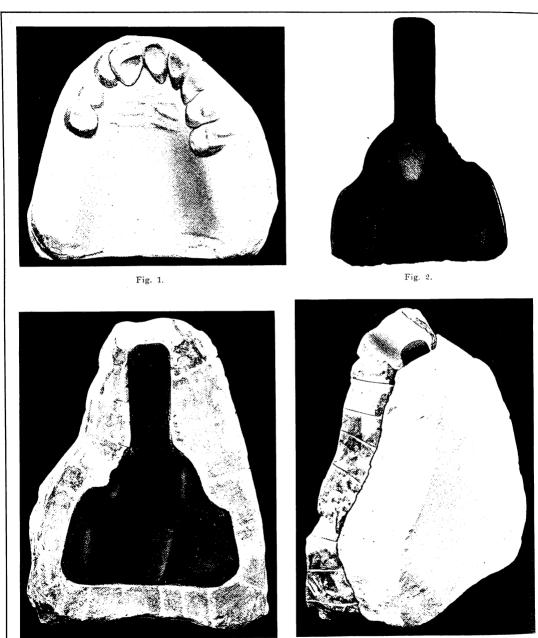


Fig. 3.

Fig. 4.



air vents are shown in Fig. 3, they are not made until after the mold is completed.

The two halves are now carefully adjusted. If by any accident some portion has broken away, the opening may be stopped with moldine, or even a paper plug. A strip of newspaper is rolled into a rope which is passed around the mold and twisted (Fig. 5) so that it forms a firm handle.

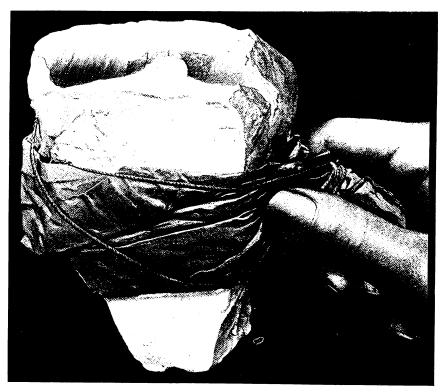


Fig. 5.

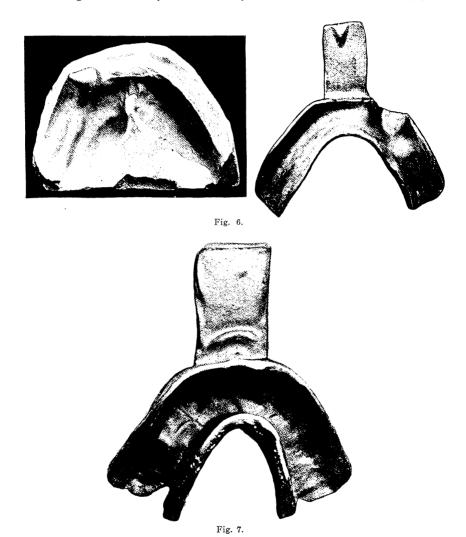
Block tin is then melted in a large iron spoon, or small ladle, and just as it reaches the melting point—for it must not be too hot—it is quickly poured into the mold, which in the meantime is held at arm's length to avoid any accidental injury to one's eyes, if it should splutter, which is apt to occur if metal is too hot.

In cases where the cup extends deeply over the incisors, and the wax would be removed with difficulty, it is possible to crack the mold in two at that point, and after the wax is removed the parts are readily put together and held by the paper rope.

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The metal quickly cools when the mold is separated, and the surplus tin in the gates is readily melted off by the small flame of a blow-pipe.



The tray is then removed, any rough edges quickly smoothed up with a coarse file, when it is ready for use. Should one or more blow-holes appear in the cup, they may not be considered as they will not interfere with its use. If a rather large one should be found it may be closed with a layer of wax.



A model may be carved and the tray be made as much deeper as necessary without difficulty.

The wax pattern should sometimes be bent away from some standing teeth, in order to allow "clearance" for the impression material.

It will be noted that not one second of time—time being one's most valuable asset—is wasted in any unnecessary trimming of the models and molds, or in *finishing* either the model or cast tray.

Unfinished as is the process and completed tray, it serves its purpose just as well as if more time were spent upon it, and its life is short, for once used the object of its creation is attained, and it soon goes into the melting pot again.

This method of making impression trays, I believe, originated with my father, and I saw them made in his laboratory over forty years ago, yet, strange to say, I have never seen them so made by anyone who did not learn the method in either of our laboratories or from a student thereof.

In Fig. 6 is shown a model, and tray for same, where the unusual course was pursued of allowing a lone cuspid to remain.

Fig. 7 shows a specially deep tray.

Why System Should Be Employed in the Caboratory, and Why It Is Not.

By L. W. Strycker, New York City.

Read before the New Jersey State Dental Society at Cape May, N. J., July, 1912.

There has never been a time in the history of dentistry when there has been so much advancement as at present in the field of prosthetic dentistry. Yet many who see a new idea demonstrated never attempt to try them out to see what merit they do possess.

Often we have heard men who were called upon to discuss a paper get up and say: "I am not qualified to discuss the essayist's most valuable paper."

It is for one or two reasons that they are not qualified: either they are telling the truth and should be qualified, or they are not telling the truth, but lack the courage to tell the man he is wrong for fear of hurting his feelings. When we are so afraid of offending that we cannot be quite honest with friend or foe we are not free—we are slaves.

I also find, with a very large percentage of the dentists whom I have met, that in regard to articles of great importance they have made no pretense of following the motto so plainly presented to them on the front



page of a prominent dental journal: "Observe, Reflect and Record," with the emphasis on "Record." A man will listen to a demonstrator or the reader of a paper and never take a note, when his college teaching should have been a lesson on that point; for one of the fundamentals is the taking of notes.

Some minds are capable of retaining the points of importance, but let me see a man taking notes and I will seek acquaintance with him.

We are all negligent of opportunities to improve ourselves, and many times we feel remorse because our share of the world's goods is so small, but let us review some of our failures in mechanical dentistry by taking up the reasons why the well-systematized laboratories of to-day are making money.

Laboratory Methods.

They adopt some system for all work. In the first place, they take the impression sent by you for a bridge—trim it down to about a quarter of an inch from the cervical line to save labor in separating,

and to insure an even thickness of plaster in the model, so that it does not break in two while working with it.

Next they use a separating fluid that does not glue the impression to the model; many prefer that made by the Detroit Dental Co., who make two kinds, one colorless, for the use of orthodontists, and the other colored.

Then they pour the model with some good hard setting plaster, and before it is so hard that it will take six months to trim it, it is trimmed up to a least a reasonable size. When set they separate it, using the system which is employed by orthodontists in removing a plaster impression from the mouth.

In regard to the wax bite, which is the next step, they prefer a thin bite to a "mush" bite; it should be in some good hard base plate wax, because of the fact that with a thin hard wax bite there is less danger of distortion when placing it on the model, and the chances are that it will go down to place without cutting away any parts.

If the impression contains abutments for a bridge, wax is placed in the undercuts of the abutments before pouring in order to facilitate removal of the abutments after the dummies have been prepared, just before assembling the bridge, so that they may be removed from the model and boiled out in pickle, weighed, etc., so that the original model may be preserved and the bridge be tested as to fit.

Causes of Croubles.

Why do you have trouble with a great number of bridges, in that they do not go into place in the mouth after they are finished? *First*, because you use a hard wax, called a sticky wax, to assemble



your bridges; this shrinks when placed in cold water or in cold investment, drawing your assembled parts closer together.

Second: Because you use any old concoction, or unscientifically mixed mess, for an investment. It cracks and shrinks, and does not expand. What you want is expansion to counteract solder shrinkage—the same as in casting.

Another point to remember is that there are minerals that fuse to porcelain at a high temperature; be careful to avoid using an impure investment.

Here is a fault I must find with a large number of dentists; it is that they do not seem to grasp the idea that the higher the grade of materials that they use the less they need to use, and the lower they bring their percentage of failures, this being especially true of gold.

The dentist imagines that because Bill Smith says he can save them money if they buy Blank's golds and solders that they are actually saving money.

How ridiculous! When a man tells me that he is getting gold cheaper than he can buy any standard brand he makes me want to act like Billy Sunday, who always says just what he thinks.

"Gold bullion has a fixed value; when alloyed with skill its value increases—the greater the skill the greater the value."

The point is that for everything you need in the dental line there are one or more standard articles which have been produced for you by the enterprise and higher intelligence of progressive manufactures. It is easy for everyone, by the exercise of the proper care, to get the best products.

The manufacturer who makes a standard article is a practical public benefactor, in addition to which he protects the quality and reputation of his article by constant improvement. In buying a standard article you always get the value of your money; and if by any chance you do not, the *responsible* dental dealer will make good the loss.

In buying a substitute you never get the full value of your money, and you have no recovery. In the substitute you obtain not only less value, but also an uncertainty.

Soldering your Joints. each

For soldering a band of a two-piece crown get your joints together "butt end"; first slide them past each other, so that when put together end to end they will hold, with a reasonable amount of spring pres-

sure. It is not necessary to use a large piece of solder. Cut it small and use a sable brush dampened in liquid flux, to place it over the joints and not beside them. And if you will use, as a jeweler does, the same make of solder as the plate to be soldered and the exact grade of solder marked



for the plate—for illustration, 22 Kt. solder for 22 Kt. plate—you will have no failures nor unsightly joints.

Clean joints in proper contact, held together properly, fluxed and heated uniformly, need very little solder.

Before soldering gold an acid bath is most essential, but use 30 per cent. to 50 per cent. hydrochloric acid; what is known as "commercia! muriatic" will do.

Have the acid in one glass, a solution of bicarbonate of soda in another, and clear, clean water in another; dip the gold in the acid, then in the bicarbonate solution to neutralize the acid, then in the water. It is well to keep a cover on the acid, as the fumes seem to have a tendency to rust tools, etc. Also have a porcelain casserole in which to boil out your work, as this has been found better than metal; or have a fused quartz casserole (which can be obtained from any chemical house), which is best.

To solder correctly you should have the case invested correctly. Have your investment of equal thickness, so that the expansion will be as nearly uniform as possible.

The hotter you get the invested case before soldering, and the more nearly uniform you keep the heat when soldering, while using the blowpipe, the better results you will have.

The following are a few "don'ts" applying if you send your work to a laboratory:

Don't think that an impression and a mush bite is sufficient on which to make a full upper bridge and have it satisfactory, unless you have made you abutments previously.

Don't send a poor impression, possibly a drawn one, in modeling compound, without a pin or a sign of a root, to have a Richmond band made, floor and pin fitted and the crown finished, for the system used in the large laboratories is such that each workman has his special work to do on each case that comes in, and by the time it gets to the fellow who puts in the pin, before going to the man who grinds the tooth, it is likely to be somewhat shifted and it will not fit at all when you get the finished crown.

Don't get the idea that the head man of a certain laboratory does all your work; he may see to it, but that is about all. They use a system, as in any other large factory, and unless it happens to be a particularly difficult case, he will only direct as to its construction. The head man is usually using his head to keep the others working in harmony; that is where the name head man originated.

If you want good results from even your own laboratory, at least make your own abutments, pour your own model and articulate it, paint



the occluding teeth with some color of your own that they cannot imitate; and if you have put wax in the undercuts of the abutments tell them so, and that you want the case returned on the model on which you send it to them, with the articulation undisturbed. Thus you will get what you have always wished you could get.

Don't ever pour a model in investing material, for the investment, after having been dried out for any length of time, shrinks and cracks when heated. Reflect a moment and see how the investment acts with your casting.

Don't expect the laboratory man to know more about the case than you do. He does not see the mouth.

Don't use a silk ligature, cut in two, as a measurement for a crown; it is almost as bad as using a rubber band. Use a wire the same gauge as the gold you desire to use, and if that comes off the tooth it is reasonable to expect that the crown will go down to place without crowding.

If you want to learn to cast so as to get a little better casting than the "good enough" kind, or the "floating island of gold in a sea of cement," you must first study the characteristics of gold.

Next, the investment; then the wax, then the heat required. Finally, the machine and how to use it.

It takes heat, flux, and judgment rightly applied, to cast gold or perform soldering operations.

Good Men Needed In Laboratories. Some few of you may say that in all this I have presented you with no new ideas; but I know that under the present existing conditions there is a crying need for competent dental mechanics.

I have found, in the systematizing of laboratories, that this is their chief trouble: they need men. They try out men who have come to them after experience in other laboratories, and especially from dentists, and they are forced to decide that these men, in spite of the experience they have had, know practically nothing. I have also found, in preparing men as scientific laboratory assistants, that I must first teach them the value of system, even if they be graduate dentists. They are so poorly prepared that they cannot judge the quality of work that comes into their offices, for in their college course they have learned no system; they have merely worked to meet their requirements and get out of college and into practice. Even in this they have trouble, for when the State Board of Examiners ask practical questions in technique the young graduate finds himself absolutely unprepared on that phase of his work.

A certain well-known dentist, allowing his laboratory man a vacation, took on another whose employer boasted of him as "the finest dental



mechanic in existence," and the dentist told me he found the man absolutely incompetent.

I am not criticizing any individual. Neither am I advising you to send your work to a laboratory. Do the work yourself, or employ a man in your laboratory who has taken a course in which systematic work is taught.

If you *must* send the work out, give the matter some thought and consideration, and you will find yourself amply repaid for your pains by the more satisfactory service you will obtain.

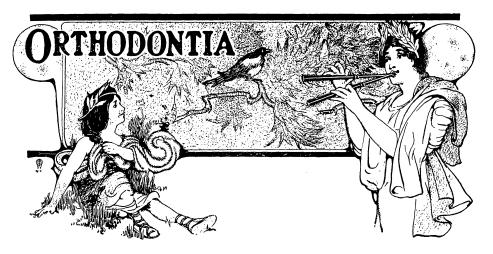
My aim in all that I have presented to you is to bring to your attention these things:

The best materials, especially speaking of precious metals, are the most economical, one reason being that you need less of them, another that you have fewer failures. Too many of you have been led to believe that cheap material is economy, which is wrong.

All men who run their laboratories with success use system in all their work. I fear too few of you have any idea of system, otherwise you would not have abandoned your laboratories.

You cannot expect good work from a laboratory if you do not furnish a suitable starting point—and a great many dentists are either too busy or too careless to pay any attention to this point.





Bodily Movement of Teeth.

By A. FERNALD, D.D.S., Boston, Mass.

In the illustration, Figs. 1 and 2, right and left, are orthodontia pliers, which I designed to bend wires while in any part of the mouth. This can be done without putting any strain on the anchor teeth.

Fig. 3 I use for bending the wire above or below, inside the centrals. In a case in which one or more teeth are not quite in position after retainers have been adjusted, the tooth can be pushed into position with rubber wedges, and then with these pliers the retainer may be bent up against the tooth

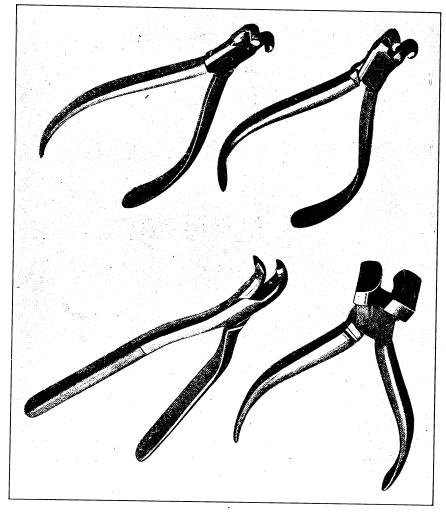
Fig. 4 shows pliers used by opticians, which are very useful in bending alignment arches and retainers, as they bend in a long curve without breaking the wire.

Moving
Apices of
Ceeth.

Fig. 5 is an appliance I have designed for moving apices of teeth or moving the side teeth parallel to one another without tipping the crowns. It consists of a hinged jackscrew, each side arm being square and fitting mechanically perfectly into a three-

sided square tube, which is soldered to the band of each tooth to be moved. On the right side the tube has not been cut in two between the teeth, to better show the construction. On the buccal side of the molar band an elliptical tube has been soldered with a heavy alignment arch inserted, which will prevent the molar teeth from rotating or tipping when the nuts are tightened on the jackscrew. This appliance can be adapted for moving the apices of centrals and laterals out, by having





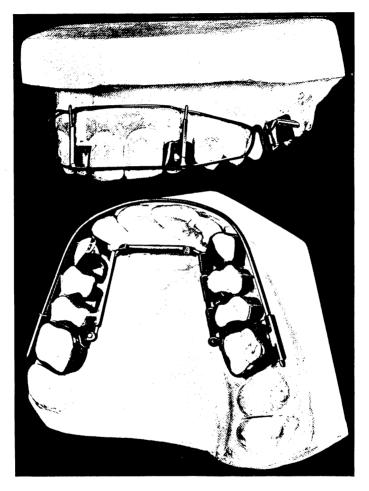
Figs. 1, 2, 3 and 4.

the square rod brought forward by a nut on either side, and the two square hinged tubes attached to molars, the anterior part of square wire fitting into the three-sided square tubes soldered to bands on centrals and laterals.

With the appliances just described, by having the alignment wire brought down very near the labial surface of cutting edge of centrals and laterals, and having the inside wire fitting into U-shaped lugs on



the lingual side of centrals and laterals, the apices of these teeth will be carried out while the cutting edge will remain the same, or can be tipped back.



Figs. 5 and 6.

Fig. 6 shows an appliance I have designed to rotate centrals, laterals, cuspids and bicuspids, at the same time bringing the apices out. Teeth to be rotated are banded and a square tube soldered to the labial or buccal surface. A square post of right diameter to fit tube is soldered to square alignment wire which fits into a square tube soldered to molar



band. To rotate the tooth and throw the apex out, the square post is bent in the direction you wish the tooth to rotate, and the upper end of post is bent out the direction the apex is to be moved by springing the square post into place in square tube. The force of the spring tends to move the tooth in the direction desired. If greater force is needed to move the apex out, another round wire can be run through buccal tubes on the molars, and so bent in a notch in upper end of square post that it cannot slip out of position and yet gives greater leverage in the direction needed.

Should it be necessary to move the cutting edge of any tooth forward it can be done with the spring of the wire attached to post. This appliance can be made very delicate, out of 22 gauge or smaller.

Suggestions Relative to Methods for Securing Co-operation of Child Patients in Orthodontia.

By Dr. D. P. MacMillan, Director of Department of Child Study and Educational Research, Chicago Public Schools.

Read before the American Society of Orthodontists, Chicago, Ill., July, 1912.

In the nature of the case, it may seem superfluous or impossible to make pertinent suggestions regarding such a topic as this. On the one hand, to deal successfully with children in any capacity may be regarded as a personal gift, so that any prescriptive suggestions may be superfluous and unnecessary; and, on the other hand, for the very same reason that one person is naturally, or without formal instruction, successful in any capacity in the management of children, it is rendered impossible to teach or point out to others the methods that bring success to the successful.

While the extremes of this may be obvious to the point of platitude, nevertheless it still remains true that our topic is deserving of attention and of careful consideration.

Naturally I am speaking from the point of view of my own personal experiences as examiner of children, for during my ten years' span of time as director of the Department of Child Study and Educational Research of the Chicago Public Schools, I have had more intimate acquaintance, perhaps, than any other person in dealing with all types and characters. Our daily experiences may bring us into contact with the deaf child normal and sub-normal, the blind child, the out-and-out truant and incorrigible, the crippled child, the child of sub-normal mentality—that borderline group which lies between the highest order of the feebly-gifted



and the child who is simply backward in school studies; the unmanageable child in home and school; the nervous and excitable, as well as the phlegmatic and stubborn child; the precocious and suggestible child, and so on throughout the list of variables in human nature; and, furthermore, it must be borne in mind that all these types and traits in children come from home, environment and training that present all grades and degrees of eccentricities and inefficiencies.

There is one great difference, however, between my dealings with children and your professional work, of which I must not be unmindful; and that is, that neither from parents, teachers, officers, nurses in attendance, or examiners, is there a history of any child having suffered any pain. Nevertheless I believe that the resmblances between our lines of work are greater than the suggested differences, and on this basis alone I am emboldened to believe that common principles can be found of sufficiently common applicability to make it worth while to recount some of them

Importance of First Meeting.

As already indicated, I am speaking only of the common requisites for securing the co-operation of the child patient. First and foremost, because your work involves a personal relationship; the initial

meeting demands that the attracting elements or captivating features of personality must be in evidence. This means the optimistic temperament; the sunshiny buoyant mood; the happy, hopeful good will and kindly attitude; and withal, the calmness and self-possession that engenders confidence and yielding. No brooding nor sour disposition; no fault-finding and fidgeting; no reserved, retreating, nor indifferent attitude, will ever tend to set up the first elements of right relations between operator and patient. And this is never so true as in the case of a child, and never so imperative are the demands upon positive attractive qualities, as in dealing with the difficult child.

Like all service, the alphabet of success lies in the direction of taking the point of view of the served. This is tact, and in your personal intercourse with the child, it is not only the beginning of wisdom, but the end as well. For this reason I believe there should be an introductory visit of the child to your office, at which time the lines of conversation must be set with a point to them well defined in your mind, and at first equally well concealed from the child. At this point pictures of children's mouths may be introduced, emphasizing pretty, well-formed and regular teeth; happy children exhibiting well-formed mouths; and perhaps this first visit may end with the child consenting to show his own mouth, and in your getting him to ask to have his teeth felt for unevennesses, etc. On a note, without the child's knowledge, make an appointment with the



mother, guardian, nurse or other attendance, and clinch your first good impression in the farewell.

On the return of the child for the first appointment for work, simply taking impressions or what not, I believe that altogether the best results are secured by having the child alone with you, excluding mother or father, nurse, governess, or older sister, or whoever it may be. In this way your chances are enhanced of working on the basis of the friendship already established.

Gaining the Child's Interest.

However, the crucial point begins to loom up large, for it is time to consider how you can proceed to procure the co-operation of the child in the projects you have planned. Apart from the child's pleasant

reaction to you as a person, you must go farther and sustain this favorable impression in you as a professional worker, and this means catching the child's interest in your plans. Do not speak of a possible or probable benefit to him, but rather of a certain good. Be as childish and voluble as you please, but bring out that as "others have done it, you can do it easier"; "this child (give name) thought it was hard to do and he found it so easy"; again, "so-and-so said there was tightness and strains and queer feelings at first, but he said that he just kept thinking how good it would feel to have it done good, and he just stuck to it"; and so on with the added and necessary variations. Keep the positive side foremost, and do not even allude to those who failed or were frightened.

Keeping the Child's Interest.

Further, it must be remembered that holding the interest is quite a different matter from merely catching it. Remember, however, that the basic elements are the same. The child's personal co-operation in

the work must be emphasized. Keep talking of what this or that child wanted done for him, not done to him; and how you heard so-and-so (a child) say that he or she heard other children say how much better so-and-so looked with teeth adjusted properly—how lots of children said that their little friends admired and envied them. Give names and be otherwise concrete. Moreover, emphasize and repeat numbers of times to your little patient the prominent part he or she must play after leaving you. Employ partnership terms and keep prominent by suggestion the successfeelings.

This matter of suggestion, by the way, is of vital importance, and withal a very simple thing, for upon analysis you will find that to lodge a suggestion successfully, only three things are essential: (1) a clear, simple, well-defined thought by the suggester; (2) a passive recipient mood on the part of the receiver; and (3) a perfect understanding and mutual sympathy between suggester and recipient. For your purposes



you can have your thought clear, not relative to what you want done (that feature of the whole your professional skill will forecast), but rather as to how you are going to proceed to secure co-operation in getting it done. Do not leave it to chance and happy-go-lucky incidents and accidents, but make chance your ally in your well-laid-out plans. The receptive mood you can induce, because, first, your child is in the expectant attitude when he visits you, and your persistence in repetitions will sustain you. Again, if the situation is worked up carefully, and you talk enough along positive lines, you can sustain the mood; and finally, when you secure that perfect understanding between you which is backed up by mutual sympathy, your idea takes hold and persists.

But your query comes naturally at this point, "If active co-operation must be secured, how can one advance in the face of the fact that not enough intelligence or mental stability is present in the child for you to gain a firm foothold to make any progress after work is begun; or, perchance there is pleasantness enough in your relation to the child, but not enough courage or tenacity of purpose on the part of the child-patient to enable you to build up any measure of success; or, further, the child may be of the type that is simply stubborn and resisting, either of the openfaced bravado, non-serious kind, or of the exact opposite, the timid, fearful, passive species, although no less mulish than his laughing, defiant companion.

Obtaining Obedience.

In all such cases you must be a ready classifier of persons, as, in fact, the great majority of dentists prove to be, and the aspect of co-operation that will now engage your attention is obediance. Recall to

mind that in general there are four different kinds of obedience which a child, or for that matter an adult, renders. First, there is passive obedience arising from mere lack of will, or supineness. In such cases at your hand, the best recourse is in a gentle and wise coercion, the imposing of your ends and aims along the lines already induced in general terms of suggestion. Secondly, there is that type of obedience which comes from liking or affection for the person issuing the commands. The kind of resistance which you encounter from children of this sort may be considered as negligible in your work. Thirdly, you will be sure to meet that type of compliance termed prudential obedience which calculates the advantages of conforming or not conforming. Here again, you will find it relative easy to weigh down the balance in your favor, provided only you sustain the attitudes and methods of procedure suggested. Fourthly, there remains that highest type of obedience which yields to submission of authority of one who knows, and which involves free, intelligent com-



pliance and co-operation. This is the form of obedience which we have been discussing under the term "co-operation."

Che Sub-Normal Child.

Taking these specials in the order previously named, it is probable that more difficulty is encountered with the first of these, the very immature, backward child, with his variety of temperamental grades,

than with any other type of special child. The case of this grade of child is all the more important because defective teeth-formation plays such an important rôle, if not understood in the sense of being a primal cause of backwardness—a point which I am not now to discuss, but it is a matter which requires consideration in such a body of workers as this—it must at least be stated conservatively that imperfect dental formation and function in some form is an almost invariable accompaniment of sub-normality. As a general statement, it may be said that in dealing with a subnormal child it is always necessary to appeal to the simplest, common, or basic motives, or select one to fit the case, and repeat it over and over again with patience and persistence; and, be it added, if possible get a motive new to the child. With regard to the abnormally timid, one can speak less of methods than in the case of any other type. Here, successful management is a matter so largely of personality, of placating and pleading in the most eloquent sense, that all I aim to do is to suggest the necessity of mild, yet persuasive treatment of immature personalities.

The Stubborn Child.

When we come to consider the next type, I am sure you will all recognize your familiar "friend, the enemy," the stubborn, bold child, who confronts you with open defiance, is best met by an open wager, appealing to his best asset, his effrontery. If you

cannot make the bet yourself get action on it by a third party, and the mulish timid child must be approached by some bribe that you determine, indirectly or from others, lies in his circle of ideas and is close to his chief desires.

Moreover, in the treatment of the stubborn child of all types, strange as it may seem, it is better to make commands and requests, or appeal in some form, impersonal or even co-operative. For instance, do not address the child as "you," with the emphasis on the particular, or the one at the end of the index finger, but rather in statement as "we" must do so and so, or "every one does thus and so," "it is the best thing to do," etc.

It is said that every person suits his philosophy of life to his temperament; it is no less true that one's personal address, manners, habits and tricks are his own and in a measure unchangeable, but nevertheless I am sure it is not necessary for young men to wait until life's experience and age teach their lessons in your total span of working-days, but the



art of managing children can be acquired by giving attention to the persuasive arts that bring success to a few. Apart from your professional zeal in technique and skill, I am making an appeal for a greater number of orthodontists desiring to work with children, when indeed such work is the most significant, and if my present remarks shall assist in any degree in increasing the efficiency of those who are undertaking such an immeasurably valuable service with difficult children and youth, I will account my compensation complete.

Discussion on the Paper of Dr. MacMillan.

I consider this paper of unusual benefit to us. We go to considerable pains to get accurate impres-Dr. Cloyd S. Courie. sions, models, photographs, etc., in order to consider the physical and mechanical problems to be encountered in our treatment. How many of us have made any preparation for dealing with the temperaments of our patients along the lines indicated and suggested in the paper of Dr. MacMillan? We have left that matter entirely too much to chance. I know I have, and I believe that where we have been successful it has simply been due to the fact that we have been fortunate in hitting upon the proper means of handling these patients. Some of us have natural aptitude for dealing with these cases of children generally. Many general practitioners of dentistry cannot get along with children and even that type of man would be able to add to his success if he would, at the start. adopt the plan outlined in this paper, of having an introductory visit for the purpose of dealing with the child's mentality and securing its co-operation.

Of course, there are many valuable suggestions in the paper that we will be interested in examining and analyzing and adopting, but to me the important thing is the idea of the preliminary plan of dealing with the child. When it comes to some of the minor details of dealing with children, I believe one of the most important is to relieve their minds of fear. I do not detract from the value of the general practitioners' service in the least, but many children come to the orthodontist in fear, the result of dental operations in which the dentist was obliged, from the nature of his work, to hurt them, whereas it is unnecessary in orthodontia. hurt a child it is because of some accident on my part, or a lack of co-operation on the part of the child. I arrange my appliances so that my promises can be fulfilled, so that if I get too much pressure on a tooth the patient is at perfect liberty to relieve it. Of course, some parents will say that you cannot give the child that privilege, and if you do, that it will take advantage of it, but I have not found it so. I secure the confidence of the child first. I would not make a promise unless I could carry



it out. If I should tell a child that I am not going to hurt him, and then hurt him, that child would not have confidence in me. A great many men assume that children are not capable of reasoning or appreciating explanation. They can and will, and time spent in explaining to them is well spent. Not only must the explanation that pain is not a necessary part of the treatment be made clear, but we should impress this upon the parents as well as the child. Many times I have secured the consent of children to do certain work for them, yet the parents have been so thoroughly convinced that pain and severe physical and nervous strain were a necessary part of the orthodontic treatment, that it was difficult to get that idea out of their heads.

Another thing in which I differ from some is this: I would not force a child to have anything done. I believe that is a mistake. I have turned several children away from my office simply because I could not change their point of view. One young lady in particular was just as emphatic in her assertions that she would not be treated as was the girl mentioned by Dr. Ottolengui yesterday. I told that patient I would refuse to do anything unless she changed her attitude. The case went along for six months; in the meantime the young lady found I was not going to antagonize her, and it was not long before she was actively co-operating with me in the treatment, though the parents had lost interest.

I am sorry I did not have a copy of Dr. MacMillan's paper to make more notes for discussion along the line of the valuable suggestions he has made. He has not only had a wide experience with all kinds of children, and especially defective children, but he has along with that experience classified his observations and his plans for handling them. There is where he has the advantage over any of our haphazard methods or experiences. Possibly we can get Dr. MacMillan to enlarge on some points in his closing discussion. I think most of us are able to deal with the normal child better than with the sub-normal. For instance, take a child that is backward mentally, or who cannot concentrate its attention upon your suggestions or instructions; such a child may be willing enough to do so. These cases have been hard to treat. In the ordinary cases, one can study temperaments and try to devise means of overcoming their peculiar whims, but these patients, it seems to me, require special study.

I have been very much interested in this paper

I think it is one of the best we have ever had before this society. I think it will do the members of the society more real good, probably, than almost any paper we have ever had, and I think we are very fortunate to-day that we have had Dr. Mac-Milan give us this paper.

I really cannot take any objection to the paper. There is one point



Dr. Lourie brought up that I wish to enlarge on somewhat, and that is the foolish attitude of the parents in many of these cases. I have had one of the sweetest and most delightful of children to work for. would absolutely let me do anything, and yet the mother, after I had been treating the child a little while, would come to me and say, although I did not know there was any friction going on, "Doctor, I don't understand how you have been able to do this for my child without hurting her." She says every time the child comes home from my office she asked her, "Did he hurt?" The child would reply, "No, mother." I told the mother that she was not acting fairly with me; that she ought to know perfectly well that if her child was having any pain she would say something about it. "Yes," the mother would say, "I did not realize this could be done without pain," and that started me on different tactics. I insist always on having an audience with the parents. I prefer, if possible, to get both of them present, but always one, before I begin the treatment of a case. I make it a point to bring it clearly to their attention that the operation will not be a painful one and that I do not want the parents to mention even the word hurt or pain to the child; that if the child is having any trouble and complains, then the parents are to let me know. I do not intend that the child should suffer. I make that point clearly, and I find it has a beneficial effect on the parents.

Dr. Lourie spoke of never forcing a child. I believe there are certain cases of young children where it becomes necessary—at least I have found it so in my practice, and I won out. I had one little fellow, eight or nine years of age, who never was controlled before he came into my office. But I had no trouble in taking impressions, and I bribed him to let me put on an upper appliance. I did not have much trouble-in fact, I did not have any trouble. He came back for the lower appliance and said to me, "You are not going to put it on." "Oh, yes I am," said I. He said, "You are not"; but I said, "I am." The boy put up a fight and I "threw my hat in the ring" and got busy. He said, "I won't open my mouth.' I replied, "I don't care." I got two fingers in the corner of his mouth and he opened it. He tried to get my hand away with his. had my assistant hold one of his hands and I held the other. Then he started to cuss me. I put my hand over his mouth to prevent this and he cussed me through his nose. I closed that and held him until he began to get dark from lack of air. I let go and said, "John, have you had enough?" He replied, "Yes," and was crying. I said, "Are you going to be good?" He replied, "Yes." I said, "That is right, my boy." I went to work and put the appliance on, and after I got through we had a hugging match. We were very good friends. His mother was in the room all the time. But he has a deficiency, without doubt. I have never



been able to keep a ligature on that boy's teeth. I do not know how I would do with wire ligatures, but he cuts off the silk ligature before he leaves the office. I have treated him with other methods, and I am getting him very near to the final treatment. There was a child who could have been appealed to by waiting for at least several years, but as I believe in the early treatment of such cases, I decided to have a fight and have it over.

Dr. R. Ottolengui.

I have been delighted with the paper that has been presented to us by Dr. MacMillan, and I am going to make a rather peculiar comment on it, some-

what different from the one Dr. Young made. This is a test of telepathic psychology, and the essayist can answer it in his closing remarks. I have an idea that the essavist, when he was writing that paper, had an attack of timidity; he was going before a new kind of audience, and he was just a little afraid he might be riding a hobby to such an extent that we would not appreciate it. In other words, I think he knows a great deal he has not told us, and I could almost wish that before the paper is published he would elaborate it. A great many years ago I was fortunate enough to get hold of a valuable work which dealt with the subject of suggestion, and I know the importance and value to the practitioner of having a real appreciation of what can be accomplished by suggestion. Yet the mere statement that one can do things by suggestion is not an adequate expression of what can be done. I am impressed with the idea that this gentleman understands this subject and that he has only scratched the surface, and I repeat my wish that he give us a little more. I have felt for a long time that there was room—yes, a need for this kind of paper. I am very much in accord with everything he has said, but I was particularly pleased to see that some of the crude ideas I have had could be classified and made to become useful rules. I have sometimes thought that the successful management of children is largely a matter of experience. That would be unfortunate because the younger man who is taking up the work would be obliged to wait a long time to get the experience which will make it possible for him to take care of children, study their characteristics and determine the line of conduct that will best serve his purpose. I wish Dr. MacMillan would tell us more and go into further detail with reference to the classification of temperaments and peculiarities of children and the means by which suggestion can be made useful. Sometimes we are very sensitive to the character of the individual with whom we deal. We jump immediately to the conclusion as to what is the best line of treatment. The very last boy that I saw before I left New York came in incidentally with his mother, and there is no work to be done for the boy until next year. I knew nothing of his character



or temperament. I cannot tell you what led me to make the remark I did. But I took him by the shoulders and said, "Goodness gracious, are you only twelve?" He said, "No, I am only nine." He was delighted tecause I took him for a boy twelve years of age. That will be a valuable asset to me because I have since been told that he is a bad boy. I had flattered his vanity when I took him to be twelve. That is only an incident, but I have made a good impression by suggestion. The suggestion in his mind may lead him to think, "Well, here is a man I am going to get along with, he appreciates me." As I have had a hint from his relatives that he is difficult to deal with—he is the only child and a spoiled child at that—it will become necessary during the first few visits of that boy to the office to treat him absolutely without discomfort. He must have his good opinion of me accentuated and deepened until it will be a great surprise to him if I do anything to him that hurts him. If I should hurt him the first day he comes to the office he would think it was intentional and he would not want to have anything to do with me.

I have another boy in mind, more or less a weakling. His people adopt a good means of helping him. If he shows timidity his mother says to him, "Jack, are you a man or a mouse?" "I am a man," asserts the boy, and the assertion stiffens his backbone. The first time he came to me and I wanted to take an impression of his mouth he was timid. He looked up and said, "Doctor, can I ask you something?" I said, "Yes." "Did you ever do that to a boy my size before?" "Certainly, and to much smaller ones." He said, "All right, you can do it to me."

But there is a great deal we have to learn. We cannot treat all children alike. Some we can treat through experience and some by intuition. A good deal perhaps we can do by rules. But the fundamental principle of success with children is that you must be fond of children; not pretend to be fond of them, but actually be fond of them. Believe me, if you hate a child he will find it out without any letter being written to him on the subject; and in the same way, if you love a child, he will do a lot more for you than if you are just thinking of dollars and cents.

Dr. B. E. Lischer. regarding untruthful children. I take it for granted he is aware of the fact that the number of apparatus for treatment requires co-operation of the patient to the extent that certain parts of it must be renewed by the patient. Let us take, for instance, the application of the elastic rubber band. The child is asked to renew it in order to avoid frequent visits to the office. I have come to the conclusion in several of my cases that the child replaces them on the way down to the office. Of course, we all have these experiences, and we have several ways of dealing with children, but I would like to have Dr. Mac-Millan state what he considers the best way of treating that kind of child.



I am much interested in that part of the paper Dr. Uarney E. Barnes. of Dr. MacMillan which deals with the sub-normal child. I am glad he touched on that phrase of the subject. I have been experimenting now for two years with the children under the care and watch of the teachers of the special schools in Cleveland who have taken orthodontic treatment, and there has been a remarkable improvement in the children, but I do not think such treatment will bring the abnormal child up to normal. It may aid them.

Again, in controlling these children, we must remember we are dealing with sub-normals of different grades, and the one that is markedly sub-normal may require some test to determine the relation between the physical and mental condition of the child. That test will give suggestions how to manage a child along the lines Dr. MacMillan has suggested. You cannot expect to do with them as with others. You must not only appeal to the child, but you must know that you have the co-operation of both parents. I have absolutely refused to undertake the treatment of a case unless I have the co-operation of and a statement from the parents that they will help me when I have not the child under control.

I have been much interested in the discussion. Dr. D. P. macmillan. I have, of course, limited my remarks only to the attitude of the child. To be sure, you must have the addition of co-operation of the persons nearer to him or in the immediate environment in which he lives. This means sometimes that you will have to call in the parents, or, in addition, you may have to call in the chum of that child, because after all the aptest or best suggestors for children are I agree most heartily with what has been said in regard to securing co-operation of the parents, because in many cases you will have to secure the active co-operation of the child indirectly as well as directly, but I believe in making the child teach the parents, because the child is a person you can teach and you can get down to his level if you have the tact and ability, and if you have that native fondness for children. Unless you get the point of view of the child, which means sympathy, fondness and affection for the child, it is very difficult for you to secure his cooperation.

The temperaments of children are so variable that is almost hopeless to try to classify them. There is only one method that will assist you in making rough classifications of them, namely, the difference between the four types of classic temperaments. For instance, the child who is quick in perceiving and who reacts (pardon that expression) slowly. If we try to operate upon him he acquires resentments, and they increase in magnitude. There is the other, the quick child, who receives impressions quickly, but they fade away just as quickly, and the next moment the mind



of the child is on a different kind of event, which comes quickly, and fades quickly. The other type of temperament is the slow phlegmatic, slow in getting reactions; slow in working off; and another type would be the child who receives impressions slowly, but their effect is quick, but they pass off.

You can suggest to a child success. It is simply wonderful how a person can take the measure of adults if he takes the measure of children; how a person can get his point of view if he can get it befor the adults, provided you attempt to get yourselves in the mental status of the recipient. Suggestion is exceedingly important. The whole matter of personal relationship is suggestion. I ask a question and by attitude suggest your answer. I approach you with a remark and my attitude draws it out of you. I mean that my whole personality appeals to you in a way. There is nothing in the world that brings success like a strong personality. You see sincerity, clearness of idea, strong emotion, and a quick courageous will—all these appeal to you strongly. Those are the characteristics of the strong person. Sometimes it requires the predominance of the effective element to make a person attractive. You can make yourself appealing to a child. In other words, you can make the child want you. That creating of the desire to win your service, to win your co-operation, is the important thing.

As to the imaginative part, the child has a part, to be sure, but again, I believe you can get at the motives that actuate the child in action. If it is pride, or a desire to show off before other children, a desire to appear better than others, it may overshadow anything else. But if you shoot enough ideas around him you will catch him. If you suspect that a child tells lies, the primal thing is, first, to find out why he lies. If it is boldness, resistance, retreating to be afraid of the result, it is easy for you to get that. If it is a plain desire on the part of the child to deceive you, you can get that. If it is the unstable surplus or superficial thinking, you can get that, because if you stay with the child long enough you can determine the elements of personality that he lays emphasis on. He has some idea of what constitutes a desirable person. You may be as sure of that as you are of any plan of action, and the thing that is necessary is to find him on the lines of his strength by beginning with the lines of his weakness. Regarding the point of view, finishing that thought, I should remark that if a child lies to you, resists you, you can check him before you begin to work and lie to him and see how he reacts. You can get his reaction on that. Then you can begin on the positive side and tell him the situation that he was in is plain, and in nine cases out of ten you can circumvent him.

Regarding sub-normals, there are one hundred different types. It



is unnecessary to use tests or the many scales of gradations to tell how old a child is. All you want to do is to carry your experience to the family or to the neighbors and ask a group of questions about the method of the child in getting to your office. It is simply reasoning about directions, whether counting money, asking the time of day, or the time of the week, etc., and engage the child on the lines of his conversation to get his topic.

I could put this subject before you in greater detail if time permitted, but would like to make a personal appeal to you so that you can see the desirability and necessity of dealing with children through and by suggestion. I believe if you can suggest success, in ninety-nine cases out of one hundred you can study and treat your cases to great advantage. (Applause.)

The Province of Orthodontia.

By E. A. Bogue, M.D., D.D.S., New York.

Read before the American Society of Orthodontists, Chicago, July, 1912.

Orthodontia is naturally divided into three headings. First, the ordinary, slow orthodontia, which is the kind generally practised by those whose main thought is to readjust malposed teeth into proper alignment. It was the malposition of permanent teeth that first brought into prominence efforts for their correction. The prevalence of pernicious influences and conditions has been, and remains, so constant that a specialty has grown up whose object is the correction of those abnormal conditions. This work has called into play the best qualities of mind and heart of those who have taken up its practice. That this is true is recognized when the names of orthodontic practitioners throughout the country are mentioned. The anatomy, physiology and hygiene of the parts involved have been more closely studied and much valuable knowledge has been obtained through that study. A great many men have been at work in Germany, France, England and America, and a great many facts have been disclosed that were in themselves well known but whose relation to this subject had not been fully realized; for instance, stooping shoulders, deficient lungs and weak heart, all growing out of an inability to take in enough air in babyhood through the natural channel of the nose. Another example, the greater liability of mouth breathers to contract contagious diseases. Another instance is the almost invariable connection between a high vault of the palate, known as a saddle-shaped arch, and the two conditions just named. These premises being granted, we see at once the immense range over which the subject



of orthodontia must reach. In ordinary, slow orthodontia, the time employed is so great that cases have arisen among rhinologists in which speedy relief was required and the rhinologist has turned in vain to the orthodontist for that relief.

Rapid Spreading of Maxillary Bones.

The second heading would embrace rapid spreading of the upper maxillary and is, of course, applicable only to what are known as contracted arches—strictly arches that have not expanded normally, and consists in a rapid movement of the two

halves of the upper maxillary bones, operating through the instrumentality of the teeth, and opening slightly or considerably the suture between the two halves of the intermaxillary bone and probably of the maxillary.

This almost always and very promptly relieves nasal stenosis, and straightens out nasal septa if the case is not too far advanced. This spreading can be very promptly supplemented by orthodontia of the lower teeth as well as of irregular front upper teeth, bringing them into proper occlusion with the new positions of the upper row, which also can subsequently have the little niceties of adjustment attended to after the apparatus used for rapid spreading shall have been removed or shall have done its work and become stationary.

Drs. E. J. Talbot and G. V. I. Brown have long advocated rapid spreading of the upper maxillaries in such cases. Dr. Varney Barnes is now taking the same ground, as is also Dr. Haskin, a rhinologist in New York.

I have been doing this same thing, more or less modified, according to circumstances, for children between six and nine years of age; in two instances when they were nearly ten, which is quite the limit for operations of this kind to be performed by means of the temporary teeth.

Preventive Orthodontia.

This brings me to the third heading which comprises what we may call preventive orthodontia. This preventive orthodontia is practised exclusively upon the temporary teeth of very young children,

which by being early drawn into the positions that they ought to occupy, carry with them the crowns of the permanent teeth lying immediately beneath them, so that when the temporary teeth lose their roots and in the process of development fall out, the permanent teeth are already in the positions they should occupy, the antra are of approximately normal size, the septa reasonably straight, the nasal passages ample.

Orthodontia of the permanent teeth in these cases will not often be needed.

The results in all my cases have been so gratifying that I take the



liberty of presenting herewith a summary of the principles underlying what I have done.

If this compilation, now rewritten, can serve my brethren of the Society of Orthodontists, I shall be very glad, for I have an idea that many among them will be glad to prevent, as much as in them lies, the evils that often come to a child born in a civilized community, which evils, if not corrected before six years of age, will exert a malign influence through life and, not infrequently, shorten life itself.

Summary.

First—The regulation of the temporary teeth is the most important feature in modern orthodontia.

Second—The prevention of dental deformities requires the retention of the deciduous teeth in their proper positions, and proper relations to each other until the permanent teeth are ready to erupt.

Third—Adenoids are a cause of dental, nasal, facial and thoracic deformities.

Fourth—Hypertrophied adenoids may be discovered at a very early age through the presence of snuffles, ear trouble, paroxysmal cough or mouth breathing. The adenoid may generally be easily removed during the first year of life without an anæsthetic, and almost without hemorrhage or pain.

Fifth—The early discovery and removal of adenoids and thorough performances of the functions of mastication and breathing are the surest preventives of irregularity among the temporary teeth. We find an intimate relation between irregular teeth and the whole category of children's diseases.

Sixth—Irregularities among temporary teeth are about as frequent as among permanent teeth.

Seventh—The surest preventive of dental deformities, as well as of contagious diseases, which are acquired through mouth breathing, is to spread the arches of temporary teeth, when too narrow, and to correct malpositions that prevent proper articulation.

Eighth—Under-developed dental arches are evidences of lack of vigor. Nature, unaided, cannot spread them. Almost all irregularities mean an arrest in development. Protrusion of the front teeth indicates a narrowed arch which is another symptom of arrest in development.

Ninth—Spreading the arches of temporary teeth enlarges the nasal passages and allows the mouth to close, thus preventing the entrance directly into the lung of the air-borne microbes of contagious diseases, and forcing them to pass through the filter of the nose.

Tenth—The relation existing between the temporary incisors and the permanent ones can, by measuring the width of the upper temporary



incisors, be ascertained with sufficient accuracy to furnish a working basis for the calculation of the size of the permanent arches.

Eleventh—A standard relation between the width of the upper central incisors and the proper width of the dental arches has been demonstrated, so that one may be calculated from the other.

Twelfth—Correcting dental deformities before the sixth year, not only assures fairly correct arches of permanent teeth, but aids in the correction of nasal stenosis, due to deflections of the septum, and aids in the correction of curvature of the spine, which carries with it the ribs, an irregular breastbone, and stooping shoulders.

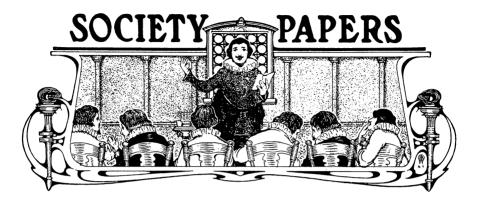
Thirteenth—The child's brain at six years of age is within 40 grammes of its weight at nineteen years of age; hence it is most important that all irregularities of nose, face or teeth should be corrected before the sixth year while growth is at its maximum.

Fourteenth—Perfectly close and regular teeth at five years of age indicate a marked deformity, and are an absolutely sure indication of a crowded condition in the permanent teeth beneath.

Fifteenth—The normal arch of temporary teeth at five and a half years of age, its front teeth being spread apart normally, should correspond in size to the arch of the ten front teeth of the permanent set at the date of their eruption.

Sixteenth—The conditions which most call forth attention of the orthodontists at this early age (four to six years) are two, prognathism of the lower arch and the continuance too close together of the temporary teeth, especially the six front ones up to this age. At four years of age these arches can generally be spread in from fifteen to ninety days, at small expenditure of time or money, and without pain if the child has been well brought up and has not been frightened. At five years of age it may take months to accomplish the same result, and at six years of age one can never be sure of results under two years, although the actual movement may have been made in two months or even less.





Ancient and Modern Alchemy.

By Prof. Thomas Bliss Stilmann, M.S.C., Ph.D., of Stevens Institute.

Read before the New Jersey State Dental Society, July, 1912.

The words alchemy, alchemist and transmutation are of great significance to the student of chemical science, as they come to us from ancient times with a history of their own. The word transmutation was used by the ancient alchemist in a sense quite different from that of the modern alchemist. It original meaning, "the changing of a base metal to a noble one," is quite different from the modern, since the transmutation of one element into another at the present time has not changed a base metal into a noble one, but indications show the reversal of the step, and that gold will be changed into silver, and not silver into gold as desired by the ancient alchemist.

The mist and fog surrounding the history of ancient alchemy has always been a source of discomforture to the modern student who demands facts or plain statement. To show how secretive and ambiguous the language of the ancient alchemist was, let us quote the directions given on the Smaragdine Table for the transmutation of silver into gold.

This table, which was a slab of emerald, was taken from the hands of the dead Hermes Trismegistus.

Crismegistus. (the father of alchemy) in his tomb by Sarah the wife of Abraham, and upon it was inscribed in Phænician characters the directions concerning the art of

making gold.



The following is the translation of the inscription:

- I speak not fictitious things, but that which is certain and most true.
- 2. What is below is like that which is above, and what is above is like that which is below, to accomplish the miracles of one thing.
- 3. And as all things were produced by the one word of our Being, so all things were produced from this one thing by adaptation.
- 4. Its father is the sun, its mother is the moon, the wind carries it in its belly, its nurse is the earth.
- 5. It is the father of all perfection throughout the world.
- 6. The power is vigorous if it be changed into earth.
- 7. Separate the earth from the fire, the subtile from the gross, acting prudently and with judgment.
- 8. Ascend with the greatest sagacity from the earth to heaven, and then again descend to earth and unite together the powers of things superior and things inferior. Thus you will obtain the glory of the whole world, and obscurity will fly far away from you.
- 9. This has more fortitude than fortitude itself: because it conquers every subtile thing and can penetrate every solid.
- 10. Thus was the world formed.
- 11. Hence proceed wonders, which are here established.
- 12. Therefore, I am called Hermes Trismegistus, having three parts of the philosophy of the whole world.
- 13. That which I had to say concerning the operation of the sun is completed.

This mystical language was used by the alchemist at that time to prevent the vulgar from becoming acquainted with the results of their long researches and labor. The true alchemist could translate it.

Rodwell states regarding Hermes that he was the author of 42 books containing all the learning of the Egyptians. Plato speaks of him in the "Phædra" as the inventor of numbers and letters. He was in fact the Egyptian god of letters; he was the dignified intellect, and hence has often been confounded with Thoth, "the intellect."

Sir Gardener Wilkinson speaks of Hermes as an emanation of Thoth, and as representing the "abstract quality of the understanding."

The ancient alchemists often called themselves Hermetic philosophers, and alchemy the Hermetic art; and to enclose a substance very securely



as by placing it in a glass tube or fusing, or sealing, the mouth of the tube was called securing with "Hermes his seal," and the echo of the idea lives with us yet; for in our most modern treatises the expression to seal "hermetically" may be found.

On the Rosetta stone Hermes is called "the great and great," or twice great. He was called Trismegistus or thrice great, according to the twelfth aphorism of the Emerald table, because he possessed three parts of the wisdom of the whole world, which in his light of deified intellect he might well do.

Modern Alchemy. Let us pass now to more modern alchemy, and notice how strong was the belief with the people that the alchemist did make gold and transmute metals.

Thus in 1404 the making of gold and silver was forbidden by act of Parliament, as it was feared the alchemist would succeed and become too powerful for the state.

Henry VI, fifty years later, granted patents to people who indicated that they had discovered the philosopher's stone.

Lord Bacon (1516 A.D.) in the *De Argumentis Scientiarum* has some very pertinent remarks regarding alchemy. "Credulity in arts and opinions," he remarks, "is likewise of two kinds, viz.: When men give too much belief to arts themselves, or to any certain authors in any art."

"The sciences that sway the imagination more than the reason are principally three, viz.: Astrology, Natural Magic and Alchemy." . . . "Alchemy may be compared to the man who told his sons that he left them gold, buried somewhere in his vineyard; where they by digging found no gold, but by turning up the mould about the roots of the vines, procured a bountiful vintage. So the search and endeavors to make gold have brought many useful inventions and instructive experiments to light."

Roger Bacon, born 1214, suffered from the charge of magic, and during his residence in Oxford was severely persecuted in consequence. He replied to the charge made against him by the admirable treatise, "De Nullitate Magial," and in it clearly showed that what his contemporaries mistook for works of spirits was in good sooth due to the ordinary operations of Nature.

In this work he speaks of gunpowder, although somewhat obscurely. "Mix together," says he, "saltpetre, luro vapo vir con utriet, and you can make thunder and lightning, if you know the method of mixing them."

Elsewhere he says: "A small quantity of matter properly manufactured, and not larger than one's thumb, may be made to produce a horrible noise and sudden flash of light."



The third constituent of gunpowder is designated under the anagram luro vapo vir con utriet, for it was dangerous in those days to speak too plainly; indeed Bacon tells us that he adopted an obscure style both on the account of the example of other writers, and of propriety, and also on account of the dangers of plain speaking.

"Continuing to a later date (1795) I will show you a book printed in Norwich, Connecticut, in 1795 by Thomas Hubbard, entitled "Valuable secrets concerning Arts and Trades, of Approved Direction, from the best artists. On page 4, the following method of the transmutation of silver into gold is given:

- "I. Get a new iron pan to grow red hot upon a trivet, and then put pounds of lead in it. As soon as this is melted, throw over it, by degrees some good saltpetre, pulverized. This will melt likewise. Keep it thus in fusion till it is at least half dissipated. Should it take fire during that time it does not signify, for, it hurts nothing, and the more concocted over again the saltpetre is, the stronger is the oil.
 - "2. Let this cool; divide the saltpetre from the lead.

"After having well pounded it on a marble stone carry it into the cellar. There it will fall into deliquium, which you will pour into a cucurbit, with double its weight of true French spirit of wine, added by little and little at a time; then distil by a slow fire. Grind on marble as before, what remains in the cucurbit; and being turned into deliquium, put it again into the cucurbit with some more spirits of wine.

"Take off these distillations and cohobations, repeating the same process over again as before, till the saltpetre remains at the bottom of the cucurbit resolved into a true oil which congeals itself no longer, and this will procure you what is called the 'fix-balm.'

"3. Next to that operation, you will make an aqua fortis with equal parts of saltpetre, dried vitriol and rock alum, and, before you put the receiver to the cucurbit, add steel filings, antimony, verdigris in subtile powder, tutty and cinnabar, of each half an ounce, or one ounce according to the quantity of aqua fortis you want to draw.

"Cohobate the spirits seven times over, upon the faces, which you will grind each time on a marble table.

"4. Dissolve one ounce of silver in three of this liquid, and on that solution, still, drop by drop, one ounce of your nitre-oil in a bottle made like the hour-glass, which after the operation must be at most only half-full, and which you will cover with another inverted, so that the neck of the under one should get into that of the upper one.

"Or, else, put it in a matrass with a long neck, which you will seal hermetically; but if you make use of bottles, take care to lute well the joints.



"Place this over hot ashes, and plunge it in them to the height of six inches.

"Give under this a lamp fire, which should not reach the matter by three fingers' distance. You will get every day to the amount of a silver pennyweight of silver fixed into gold, and when the whole shall have been fixed thus, day after day, the *aqua fortis*, which before was green as an emerald, will become as clear as pump-water.

"Let the composition cool, and divide the water from the oil, which will never be the worse for use, and must therefore be preserved.

"At the bottom of the vessel, you will find the silver fixed into gold."

It seems strange to us that many of our ancestors only three generations past believed in these receipts,—and indeed endeavored to make gold in the manner above described.

About 1820, and until 1900, the belief in alchemy gradually disappeared, and it was not until the experiments of Sir William Crookes and Becquerel made upon X-rays and allied subjects, finally ending with the changing of radium into helium, by the Curies, that transmutation of metals becomes a fact under new and scientific methods.

Present-Day Alchemy with Radium.

Suppose we take some chloride of radium, weigh it and place it in a glass tube and seal both ends; weigh the tube and contents again.

After a certain length of time (depending upon the amount of chloride of radium in the tube) ex-

amine the tube and contents and it will be seen that there is no chloride of radium present, and that the glass tube contains no solid matter whatever. If this tube be placed so as to obtain the spectra of the interior, it will be found that the element (helium), a gas is present and that the radium has disappeared.

Weigh the tube and its contents again, and it will be found that the weight is the same as before. There has been no loss, and the element radium by transmutation has become the element helium.

Take another sample of chloride of radium, weigh it, place it in a glass tube and seal it, and weigh it. Change the condition of exposure to the tube, and it will be found that a light or glowing is given off by the radium chloride.

This light is measured in terms of fractions of a candle power, and as the amount of light is convertible into heat, we can determine how much power is given off by this radiation or emanation from the radium chloride.

Weigh the tube containing the radium chloride and it will be found to be the same as the original weight.



How is this possible? Here we are obtaining heat and light without any loss to the generative substance, radium chloride.

In fact, this would seem to destroy the law of the conservation of energy.

This radiation, or "radio-activity" of radium, is of three classes; alpha, beta and gamma.

The alpha rays produce the greater heat and light effects. They are positively charged and consist of particles projected with speed ranging from 8,000 to 12,000 miles per second.

The beta rays are electrons projected with very high velocities. They are of infra-atomic size, whose mass is 1/2000 of that of a hydrogen atom.

These rays are capable of penetrating thin layers of aluminum, tin and other metals.

The gamma rays are feeble in radiation, but the most powerful in penetration, as they are capable of penetrating several inches of solid iron.

One gramme (15 grains) of radium chloride evolves over 100 gram-calories per hour, and Smith states that it is estimated that the total amount of heat spontaneously produced by 1 gramme would be 10¹⁰ gram-calories.

To produce the same amount of heat by combustion, no less than 600 pounds of hydrogen would have to be burned. It is stated that a ton of radium would boil away 200 pounds of water each hour, and besides it would serve as efficient fuel to warm a house, do all the cooking and afford plenty of hot baths for a large family, not only during their own lives, but it would continue to perform these useful functions for about 20 generations, before any diminution of the radium could be discovered.

It has been shown that the spontaneous change of the emanation from radium results in the formation of helium.

If the emanation is in contact with and dissolved in water, the inert gas produced is mainly neon. If the emanation is left in contact with copper sulphate or copper nitrate solution, argon is produced.

Here is transmutation almost beyond belief. In regard to the energy developed by these radio-active transformations, Fournier D'Albe states: "It is evident that the energy by no means represents the total energy hidden within the atom."

It is quite possible that even the total disintegration of a chemical atom into particles of the size and mass of an electron (1/2000 of a hydrogen atom) does not involve the dissipation of all of its internal energy and the total destruction of its inertia.



For even an electron possesses mass, and represents energy to an extent of at least a millionth of an erg.

The facts already ascertained have exorcised the lugubrious threats of an inevitable decay of the energy of the visible universe.

They have indicated a new and unlooked-for source of supply whence the available energy can be recruited.

When the familiar natural forces fail, we may still draw on the infinite energies which well up out of the "infra-world," and who knows but that the infinite series of successive infinitesimal universes may harbor a supply of energy which guarantees an eternal existence and stability to the universe we live in?

While radium is evolved from uranium ores, so far it has not been obtained from uranium directly, but through an intermediate product called "ionium."

The following table (genealogical) gives the changes undergone by uranium in its transformations:

Uranium	7,500,000,000 years
Uranium X	32 days
Ionium	,
Radium	2,500 years
" emanation (nitron)	5.3 days
" A	4.3 minutes
" B	38 "
" C	30.5 "
" D	17 years
" $E_1 \dots E_1 \dots \dots$	9.5 days
" $E_2 \dots E_2 \dots \dots$	7 "
" F	203 "

Radium F is probably polonium, which finally becomes lead.

The absorption of luminous rays raises the temperature of the absorbing body.

"When the rays are absorbed by the body itself, as happens when rays coming from the interior are absorbed by its outer layers, the radioactive body maintains itself permanently at a temperature above that of its surroundings."

Thus the radium preparations first examined by the Curies remained permanently at 3° C. (37.4° F.) above surrounding objects, and as stated: "A large sphere having a smaller area for its volume than a small sphere, a large sphere containing a certain amount of radium per unit volume will cool more slowly than a small sphere having the same amount of radium per unit volume. Hence it may well be that the heat of a planet is mostly



due to radium, and that is why the moon is cold, the earth fairly warm, and Jupiter and Saturn at the boiling point of water."

Strutt and Fournier D'Albe state that the existence of radium in the rocks of the earth's crust has shed quite a new light on the controversy with regard to the possible age of the earth.

"The time required for geological changes at known rates is far in excess of the time during which, at the ordinary rate of cooling, the earth may have been a globe with a solid crust.

"But, if instead of starting with a limited supply of heat, the earth derives a continuous supply of energy from the internal store of radium, its geological evolution may be indefinitely prolonged.

"We are on the eve of a revolution in chemistry. If the transmutation of matter is converting one form of energy into another, and if matter is energy, then indeed the future may bring us a new face to the world."

It is true that radium decays in a short time—a few thousand years at most. But it is ever renewed by its ancestor, uranium, and that again may be resumed after its career of seventy-five hundred million years by the formation of some yet denser substance (actinium?) which is so unstable that it rapidly disappears.

Many other metals, other than the radium group have been transmuted.

For instance, silicon, zirconium, titanium and thorium have all been changed to carbon, and thus the work goes on.

What will the future give us?

We are expecting some great discovery that will explain many problems before us. The biologist says he will give us the germ of life. The electrician says electricity is life; while the chemist lacks but one link in the chain to produce albumen, which of course represents a substance derived from life. In fact, may we not look for a union some day of the spirit forces and material forces to produce a harmony of potential, resulting in the solution of the great problem, "what is life"?



Che hands of the Clock.

By Rea P. McGee, M.D., D.D.S.

Read before the Colorado State Dental Society, at Colorado Springs, June, 1912.

Study, thought and experience require time. Time brings changes. The customs that we have learned to love give way to the dreams that materialize. If our thoughts and our dreams square with the truth, then the hands of the clock, in their journey round the dial, will constantly point to improved methods, better organization and greater accomplishment.

Change is inevitable.

It lies within our power to convert change into improvement.

We cannot turn the hands of the clock backward, but we can carefully adjust the regulator. The regulators of our professional life are our city, state and national societies.

Heretofore two or three days each year devoted to papers and clinics have been all that we considered necessary. These two or three days were of immense benefit, but if we are to keep in touch with the progress of dentistry, we must pursue our studies throughout the year.

Reorganization of the National Dental Association.

The time has come for our State Dental Association to sit up, look around, and take a little nour-ishment. If our profession is to reach its best development, in this or in any other community, it must be thoroughly organized. Organization means cen-

tralization and the one paramount dental influence in this commonwealth must be the Colorado State Dental Association. The reorganization of the National Association, which is to be voted upon at Washington in September, is a distinct advance. The idea is to make the local societies a part of the State Society, and the State Society a part of the National Association.

The plan of reorganization is open to much criticism. Almost any plan would be open to criticism. But the big fact is this: The time has come for the dentists of America to form one great organization—an organization that will command respect. I am in favor, strongly in favor, of a representative dental association, national in scope, which shall have its ramifications extending into every city, town and village in these United States; an association whose control will be truly representative, whose influence shall be both a stimulus to professional advancement and a jealous guardian of dental rights. If this proposed constitution is square in intent, let us adopt it; if it is so constructed as to favor one element, let us suggest changes, but in any event let us co-operate. Let us



give our support to a movement that will be strong enough to publish a journal that shall be distinctly dental. All of our periodical literature depends for publicity upon the commercial houses that manufacture our supplies. I believe that these trade-owned journals have been more unselfish and more devoted to our interests than have those of any other calling under similar circumstances, but the fact remains that we have no journal of authority and wide circulation that actually and wholly belongs to our profession. The possibility of a real national dental journal of, by and for dentists is well worth a national reorganization.

We have now reached the point where it seems advisable to divide our society into sections, to facilitate organized study. Four sections are suggested in the reorganization of the national. For our purposes I would suggest five.

Section I should have charge of operative dentistry, nomenclature literature, dental education and allied subjects. As first of these allied subjects I should place diagnosis. This subject is more elusive, more difficult to learn, more difficult to teach and more difficult to write than is any other subject with which we have to deal, and yet it lies at the very toundation of all our efforts. The advances in operative dentistry alone would be enough to keep the whole association busy. And then nomenclature—well, like profanity, that is a gift; it cannot be learned. This section, too, should do a thing that has long been a real duty that has been diligently side-stepped, that is, take up dental education. faculty of our college has worked patiently for many years to build up a creditable institution. They have succeeded. We have gently, but firmly, pushed them in the face. Let us make this section a sort of an auxiliary faculty, that may be called upon to tide over the vacant hours that must occur. The matter of getting a few extra lectures is difficult to the faculty, but it is more difficult to supply the lecturer. The work of this section would familiarize a number of men with the progress of dental education so that they could fill in without a jar. And dental literature! If you truly wish to appreciate dental literature you should contribute a little occasionally.

Section 2 should have charge of oral surgery, anatomy, physiology, histology, pathology, etiology, prophylaxis, materia medica and allied subjects. This sounds almost like the state board crowd. It seems to me that those of us who expect to remain here should keep posted upon these subjects as well as those who expect to move into another state and prove that the pen is mightier than the sword.

Section 3 should have charge of prosthodontia, orthodontia, metallurgy, chemistry and allied subjects. Prosthodontia has made more improvements in the last ten years than it did in the previous fifty. We



must consider not only the comfort, usefulness and beauty of our appliances, but we must thoroughly understand their physical, chemical, physiological and pathological tendencies. Not only the specialist, but the general practitioner must be familiar with orthodontia. I fail to see how a general practice of dentistry can be conscientiously carried on without a few cases of orthodontia, at least. It is particularly important to detect and correct the slight irregularities at an early age. These very young cases can be handled very much better by the general practitioner than they can by the specialist.

Section 4 should have charge of public oral hygiene and allied subjects. It will give an opportunity for those interested in the subject to work whether they happen to be appointed upon the committee or not.

Section 5. This additional section should have charge of dental business. It should investigate the office costs, rent, material losses and all kinds of expense. It should try to do that almost impossible thing—find out what the average charge is. It should consider the reason for rise in the cost of materials. It should get data upon rents, office arrangements and wherever there is a new arrangement exhibiting economy or convenience, bring it to the notice of the association. This committee should consider new appliances and take up the investigation of methods of collection and formulate and introduce methods of co-operation among the members of this association to keep down expense and keep up receipts.

The plan of apportionment of the membership to the different sections is, first, by personal choice, and, second, by appointment from the chair or Executive Committee. Every member must, of course, belong to one or more sections.

Specialists. In addition to the work of the sections, the state association must consider other matters of vital importance to the welfare of its membership. For instance, "Specialists." We must endeavor to find out what a specialist is and why. My observation has led me to divide them into three classes.

The first class is composed of those men who have proved themselves equal to the average in general practice, men who have developed their skill and judgment by years of study and experience, and in addition to this are so far superior to their fellows in some particular subject that they are expected by both their profession and the public to devote their time exclusively to one department.

The second class is composed of those who, in their college days, have made their choice of one subject and have never practiced anything else.



Then there is the third class—those who are below par in all subjects except one, and are not above the average in that; a class who are looking for a snap; the mighty hunters of the easy work. This last class soon eliminates itself.

The first two are here to stay. They represent one of the developments of our profession and we must consider them a permanent factor. We must gradually reach an adjustment of the rights and privileges of the special practitioner in his relation to the general practitioner, and of the rights and privileges of the general practitioner in relation to the specialist. General practice, however, must remain the bed-rock of our profession. The twig cannot grow more important than the trunk. If our code of ethics fails to cover these new departures, let us change the code; but if our code does cover the present conditions, let us come to a more thorough understanding of it.

The state association should require all itinerant special course men to prove their qualifications as teachers and to limit their claims to solid fact. I would suggest that the section, under whose jurisdiction the work falls, pass upon such credentials before our members enroll for the courses.

Board of Examiners.

We must look into the workings of the State Board of Dental Examiners. This is always a very delicate subject for discussion. It is the duty of this society to resume control over this board. It

is within the province of the Colorado State Dental Association to prescribe the requirements and determine the methods of examination of candidates for licenses to practice in this community. The law of this state gives us a permanent majority of the members of the board and in so doing places upon our society the responsibility for just examination and proper enforcement of the law. There is no provision of the law that gives discretion in the matter of enforcement against one unlicensed man and leniency toward another.

The state association must demand and receive regular and full reports of the doings of the state board. This society must bestow praise where praise is due, censure where censure is due, and must interfere where interference is due. We must make it clearly understood that our members serving upon the examination board are not there in their individual capacity, but are there as our representatives. I am not criticising the present board; I am suggesting a method of avoiding future criticism.

National Relief Fund.

We have been surfeited with oratory upon our duty to our fellow man. At last there is a movement on foot to do something for our fellow dentist. A committee has been appointed from the National



Association to urge the state societies to contribute at least one dollar per year for each member toward a National Dental Relief Fund. This is a movement that ought to succeed. There should be a fund somehow, somewhere, that could be looked to as a last resort. Nobody cares much about the life-boat at the start of a voyage; but there are wrecks.

With each tick of the clock new organizations are formed and old ones are strengthened. The independent individual is almost lost. If we are to go ahead, we must have mutual support. Let us strengthen our association at every point, let us widen our organized grasp. Among ourselves we must have differences occasionally. It gives us mental exercise, leads to better understanding, and clears the atmosphere. But to our contemporaries we must present a united front. Next to our technical knowledge we must cherish the *esprit de corps*.





New Jersey State Dental Society—Forty-second Annual Session. Evening Meeting, Chursday, July 18, 1912.

Dr. Hawke called the meeting to order.

On motion the roll call was dispensed with.

(Dr. Hopkins then presented the report of the committee on Dental Legislation, which, together with the adoption thereof appears in the proceedings of the first meeting of the session.)

Dr. Fawke. Professor Thomas Bliss Stillman, M.Sc., Ph.D. of Stevens Institute who will read a paper on "Ancient and Modern Alchemy."

(Professor Stillman then read his paper.)

On motion the discussion on Professor Stillman's paper was post-poned until the Friday morning session.

I desire to move a vote of thanks to Dr. Still-Dr. Cuckey. man for his very interesting and valuable paper.

The above motion was seconded and unani-

mously adopted.

Prof. Stillman.

Dr. Fawke.

I thank you most heartily, members of this association, for your vote of thanks.

The next on the programme will be a series of lantern slides by Dr. H. J. Kauffer, of New York, who has given us a table clinic and will now exhibit

the slides on oral surgery.

(Dr. Kauffer then proceeded to exhibit a number of slides illustrating various phases of oral surgery, particularly in relation to the treatment of fractures of the jaw. At the conclusion of the exhibition a vote of thanks was extended to Dr. Kauffer.)



I move that a committee of three be appointed to audit the Treasurer's books.

The above motion was seconded and carried, and Drs. Sutphen, Vinson and Crater, appointed such committee.

I now have great pleasure in introducing to you **Dr. Hawke.**Dr. H. L. Ambler, M.Sc., D.D.S., of Cleveland, Ohio, who will deliver an illustrated lecture entitled "A Travelogue Around the World of Dentistry."

(Dr. Ambler then proceeded to give a lecture illustrated by lantern slides showing offices of dentists and matters of interest pertaining to dentistry in the various countries visited by him in his trip around the world.)

(A vote of thanks was extended to Dr. Ambler.)

On motion the association adjourned until Friday, July 19, 1912, at ten o'clock in the forenoon.

Friday, July 19th. Morning Meeting. Valedictory.

By Charles A. Meeker, D.D.S.

On the 28th of October, 1870, the New Jersey State Dental Society was successfully organized at Trenton, N. J. In the original call for the formation of a State Dental Society there were the names of 28 dentists, and to-day all but six of them have passed beyond. The only charter member living and still active in the society's work is Dr. Charles S. Stockton, who, I regret to say, is not with us to-day, as he is slowly recovering from a critical and severe operation which, on account of his age, makes his progress toward recovery very slow. But even though he is not present, his heart is with us, and his mind is just as active as ever for the good of the society. He wrote me just two days ago that it was a great sorrow to him not to be here this year, as he has always been one of the faithful in attendance, and I am sure he is missed by his many friends.

At the second meeting of the society which was held in Newark, July 11th, 1871, your Secretary, who was then a mere boy who had recently left an employer whose hobby was dental societies, and the saving of the sixth year molars, became a member, and, heeding his preceptor's advice, adopted his hobby of society affiliation.

At this second meeting, fifteen dentists were elected to membership in the society, eleven of whom are now dead.



Like many young men imbued with the importance of their chosen profession, I took the greatest interest in the society, made friends with and of the elder men, and at the meeting of July 8th, 1875, was elected Secretary and with the exception of one year as your President, I have been your Secretary and have tried faithfully to perform the duties as such ever since, and have been present at every meeting from the year I became a member.

Having no particular social duties, my interests naturally centered in the society, and my hobby has been to help make the society a success; to make it known throughout the dental world, and its annual meetings something to look forward to.

The society has been particularly favored in having as its friends and well wishers a remarkable list of the most distinguished men of the profession; cultured and educated men, who have made themselves known the world over for their advancement of the profession. Some of the names I refer to with reverence, for their interest and assistance toward a goal of world-wide fame.

Men Who Aided the Society. First, we have the Grand Old Man who was years ahead of his profession, and whom many of you remember and love for his good qualities, Dr. Wm. H. Atkinson; then Wm. A. Dwinelle, C. W. F.

Bodecker, Carl Heitzman, R. Finley Hunt, A. L. Northrop, J. Bond Littig, Frank Abbott, O. E. Hill, Stephen P. Andrews, Dr. Winder, Samuel S. White, Chas. E. Francis, J. H. McQuillan, J. Foster Flagg, W. G. A. Bonwill, J. E. Garrettson, A. W. Harlan and Safford G. Perry, beloved by all who had the pleasure of knowing him. These men have all passed away and were famous for their work. Then we have still with us such well-known men as H. W. Foster, R. R. Andrews, N. W. Kingsley, E. T. Darby, Eugene Talbott, George Evans, T. S. Waters, Wilhelm Herbst, Geo. A. Mills, W. W. Walker, R. Ottolengui, Dr. W. H. Truman, a grand old man whom we all revere, and who has been in constant and faithful attendance at every meeting of the society for many years; Dr. B. Holly Smith, the joyful friend of everybody; then the stately and dignified James Trueman, besides many other notables that might be mentioned had we the time for reminiscences.

Elinics Inaugurated. With such an array of famous men, all loyal friends of the society, and the members working in harmony, the society grew and prospered, so that its name is known the country over. I well remember

during the early years of our society, the National Association and other societies thought it beneath the dignity of a society to have clinics and



exhibits, and the New Jersey State Society was the first society to permit public exhibits and give clinics. The wisdom of such a post-graduate course for the busy dentist has been fully demonstrated by the latter-day programmes of State societies and the National Association.

Proposition for World's Fair Congress.

New Jersey has been the pioneer progressive state in many innovations; it was the first State to bring forth a resolution for a World's Fair Exhibit at Chicago, the resolution by your Secretary at a meeting held in the office of the President, Dr. S.

C. G. Watkins, at Montclair, was passed unanimously, and our society called a meeting at the Hoffman House in New York of the dentists from near-by States; the meeting was a success, but our society was basely deprived of the credit for the work performed.

Relief Fund for Indigent Members. This society is also the first to create a fund for its indigent members who have been unfortunate in not securing means for old age. Even this credit has been claimed by the National, and you do not hear any of the journals commending us, except the

Dental Scrap Book. The State of New Jersey is the first to have passed a general law providing that incorporated dental societies may form free dental clinics in the various cities of the State and apply for an appropriation to the amount of five thousand dollars for maintenance; this for the indigent poor of the cities.

Rule of Rotation in Office. New Jersey is the only State society that has had an unwritten law in its selection of officers, and it gives the humblest member an opportunity of attaining the highest office, that of President, by his work on the minor committees, and no man has been turned

down who has done his work faithfully; this policy has been in operation since the beginning and is a stimulation of a laudable ambition among its members.

I have been your Secretary for thirty-six years, and I leave you with the thought that during this period of service I have performed all my duties with an eye single for the good of the society, and during this time I have made many true and tried friends whose friendship no earthly possession can buy, or is so valuable. I have been also the recipient of more abuse and vituperation than most officers occupying such positions in other societies.

I trust those who are my friends and those who are my enemies will make the path of my successor much smoother than mine has been; that



the society will grow and expand into more usefulness; that this year all differences now existing will be healed, and the society continue for many years in perfect harmony. I desire to thank my friends for their loyal support during these many years as your servant and their confidence in me and my motives.

(Dr. Meeker's valedictory was received with loud and continued applause, which did not subside for more than five minutes, and at the conclusion of the applause three cheers and a tiger for Dr. Meeker were proposed and heartily rendered.)

If it is fit and proper at this time, I move that the valedictory address of Dr. Meeker be spread in full on the minutes, and that a rising vote of thanks be extended to Dr. Meeker for the faithful performance of his duties during the thirty-six years of his incumbency by this convention of dentists attending here to-day.

(The above motion was seconded and carried, and a unanimous rising vote of thanks extended to Dr. Meeker pursuant to the motion.)

Mr. President and Gentlemen: It is with a great deal of regret that I with many of you have listened to Dr. Meeker's reading of his valedictory at this time. Dr. Meeker has been a power in this society for thirty-odd years. He has worked, he has spent his energy, his time and his income for the benefit of this society, and no one man—I might saw no ten men—in this society have ever done as much as he has for it. Others have come and they have gone, from one time to another, for a few years at a time; they have passed on and out, and that ended it as far as they were concerned, while Dr. Meeker has been here true to the society year after year for thirty-six years.

Origin of Columbian Dental Congress. I will not attempt to take up the time of the society in going over the different items of his work and what he has accomplished, but there are one or two points which I know are very dear to Dr. Meeker's heart, and one is the inception, the estab-

lishing, the beginning of the International World's Columbian Dental Congress. That congress was started here in New Jersey, and New Jersey never secured the proper credit for it; they tried hard to steal that credit from New Jersey, but finally had to give in, in a half-hearted way, so that there was a simple record made of it in the Columbian Congress proceedings. Dr. Meeker was the originator of that idea; his was the



first thought in this country in regard to establishing a world's Columbian Dental Congress. I was the President of the New Iersey State Dental Society at that time, and the semi-annual meeting was held in my office. Dr. Meeker was present at that meeting, and before it was called to order he suggested to the members that we start a Columbian Dental Congress, and, after the meeting was called to order, a motion to that effect was made by Dr. Meeker and carried. I had the circulars printed and they were sent out to all the dental societies in the Eastern and Middle States, calling a meeting at the Hoffman House, at which I presided in March or April, 1890. A great many of those societies were represented at that meeting, and the subject was discussed pro and con, and finally a motion prevailed to refer the matter to the American and Southern Associations. It went to these Associations, and they took it up as though it were a new proposition, and did not give New Jersey any credit for it until they were compelled to do so at a business meeting when the Congress was pretty nearly ended, so that it did appear in the minutes though in a very slight and obscure way.

I was very glad to hear Dr. Meeker this morning come out and give a description of that beginning and claim recognition for the New Jersey State Dental Society, and I hope it will go on the minutes and that it will not be lost to history. (Loud applause.)

First Society to Keep Stenographic Records.

Another interesting point in the history of Dr. Meeker and the New Jersey State Dental Society, which Dr. Meeker forgot to mention, is the fact that this society was the first dental society to employ a stenographer to report the transactions of their

meetings. In 1877, at Long Branch, Dr. Meeker employed Mr. Craig, a stenographer whom he met in Long Branch, to make a stenographic report of that meeting, and very soon after that the New York societies and the American Associations engaged him, and following along, other societies fell in line and employed stenographers; so you see Dr. Meeker was always on the alert to advance the cause of dentistry and anxious to make progress in dental societies. I am glad to be able to say these few words at this time, and I thank you.

(On motion, the society returned to "Reports of Committees.")

(Dr. Barry then presented the report of the Committee on President's Address as follows:)

Report of Committee on President's Address.

The Committee appointed to consider the recommendations contained in the President's address beg to report as follows:

We recommend that the fund created for the care of our aged and indigent members be continued.



We heartily commend Dr. Irwin's work as the best authority on dental laws, and would suggest he have on file such changes as occur so as to keep the work up to date. The leading universities of this country and England have endorsed this work, the following being a list thereof: Harvard, Michigan, Northwestern, Pennsylvania, Temple, Southern California, Medical University of London, Marquette University, Baltimore College of Dental Surgery, Colorado College of Dental Surgery, St. Louis Dental College, and Kansas City Dental College.

The President suggests the affiliation of our society with the National Dental Association—we trust a basis can be established making such affiliation desirable to all concerned.

The legislation in favor of free dental clinics that is recommended, we are glad to say, through the efforts of some of our members of our own society, has already been enacted and is at present on the statute books.

We would, however, suggest that dentists in the various cities and towns make an effort to establish a course of lectures in the public schools with the approval of the respective Boards of Education, the lectures to be given to both children and parents so that they may be better informed on matters pertaining to oral hygiene. We would recommend that all cities covered by this law avail themselves of this excellent opportunity to establish free dental clinics.

The permanent committee on oral hygiene would state that lectures are being given in the larger cities throughout the State.

WALTER F. BARRY, WILLIAM L. FISH, F. G. GREGORY.

(Upon the presentation of the above report Dr. Hawke surrendered the chair to Dr. Adams.)

(On motion the above report was accepted with the thanks of the society to the committee.)

(Dr. Hawke then resumed the chair.)

Dr. hawke. Will you take up the Treasurer's report now?

Are you ready to make a report, Dr. Hull?

Some of the matters are unsettled, and I think I can do better after I go home and get it all settled up.

Dr. hawke.

I understand it is very hard for Dr. Hull to make a complete statement at this time.

Treasurer Hull.

Yes, I would rather turn it all over at once.

I move that Dr. Hull's request be granted.

(The above motion was seconded and carried.)



Dr. Hawke. Creasurer Hull. As soon as possible, will you make your report?

As promptly as possible. I will make it after I return home, to the incoming Treasurer.

(Dr. Truex then presented the report of the Treasurer of the Committee of the Fund for Aged Dentists as follows:)
To the New Jersey State Dental Society:

The following is a report of the Treasurer's account of the Trust Fund for Aged Dentists, as it stands to-day:

1911

July 18	Balance in the bank	\$240.04	\$2.42.24
August 11	Check received from Dr. H. A. Hull, Treasurer	166.00	\$240.04
1912		,	
July 9	Check received from Dr. H. A. Hull, Treasurer	23.00	`
	m . 1	<u> </u>	
	Total receipts from Treasurer from July 18, 1911, to date		τ89. ∞
	Amount in the bank		\$429.04

WILLIAM E. TRUEX,

Treas. Trust Fund for Aged Dentists.

(On motion the above report was received and placed on file.)
(On motion it was resolved to return to "New Business.")

This is a rather delicate matter and I had hoped that Dr. Meeker would stay out of the room for a little while longer. All of us who know Mr. Meeker

know that he has always stood for the advancement of the dental profession in the State of New Jersey, and as a tribute to and in appreciation of his work and service during all these years in which he has served us so faithfully, I would like to make a motion that a committee of three be appointed by the chair to collect contributions that some tribute of our regard might be handed to him, and I know that everybody in the society would contribute to give some token from the New Jersey State Society as a testimonial to Dr. Meeker for his faithful and valuable service rendered to the dental profession of the world at large.

I make the motion, that a committee of three be appointed to receive funds and show our appreciation of the service rendered by Dr. Meeker by some token.

(The above motion was regularly seconded.)



Dr. Barry. Should come from the individual members of this society and I would like to have it understood that the testimonial comes from the New Jersey State Dental Society.

(After some discussion Dr. Smith's motion was put and carried, and the President appointed as the committee, Drs. Holbrook, Watkins and Hopkins.)

Dr. Hopkins.

With all due respect, I decline in favor of the maker of the motion, Dr. Smith.

Dr. Hawke.

Very well. I will appoint Dr. Smith.

Election of Officers.

Is there any other business before we go to the election of officers? If not, we will proceed with the

election of officers. It will be necessary for us to have tellers and I will appoint Drs. Muffort and Smith.

The election of officers then proceeded, and resulted as follows:

President, Dr. WILLIAM I. THOMPSON, Asbury Park.

Vice-President, Dr. WILLIAM H. GELSTON, of Camden.

Secretary, Dr. Edwin W. Harlan, of Jersey City.

Treasurer, Dr. Charles F. Jones, of Elizabeth.

Dr. Hull, the retiring Treasurer, made a request of the society that he be permitted to nominate his successor, and it was upon his nomination that Dr. Jones was elected.

The following were elected as members of the Executive Committee: Dr. Walter F. Barry, Dr. Henry Fowler, Dr. C. P. Tuttle, and Dr. James I. Woolverton.

Membership Committee elected: Dr. Horace I. Beemer, Dr. Asher Burton, Dr. Franklin Rightmire, Dr. Joseph E. Crandall, and Dr. Joseph Kussy.

Dr. Vernon G. Rood, of Morristown, was elected for recommendation to the Governor to succeed Dr. Benj. F. Luckey on the State Board of Registration and Examination in Dentistry. And Dr. William E. Truex was also elected to serve for a term of four years, succeeding himself.

The chair then reappointed Dr. Hindle to serve upon the Legislative Committee.

Dr. Fightins.

Will you turn to new business and accept a resolution?

Dr. hawke.

If that is the wish of the society and there is no objection.

I move, Mr. President, that all litigation of any kind, brought in the name of the New Jersey State Dental Society be discontinued without costs to



either side as against the other, and that the Attorney General be requested to discontinue, without costs, the proceedings he has instituted in behalf of the State.

(The above motion was regularly seconded.)

Dr. hopkins. Carrying out the scope and effect of what we attempted on the first day of our session when we adopted the minutes of the last meeting up to a certain point, and by so doing abolished the two sets of officers elected last year at Asbury Park. This motion, if it prevails, will take these cases out of the courts and remove that blot from the fair name of the New Jersey State Dental Society. It is without prejudice to either side that the suits are to be discontinued and taken out of the courts entirely, and I hope and trust the members will see it in that light, and that the resolution will be adopted.

Dr. Fawke. Are there any remarks?

(There was no response.)

(Dr. Hopkins' motion was then put and unanimously adopted.)

Dr. Bawke. It is so ordered and it affords me great pleasure to make this announcement.

Mr. President, I would like to have your indulgence for one minute. It being the case that we were without officers, the younger element, being in the

majority here at this meeting, have so willed it that the hold-over Vice-President of the year before should fill the chair, and I desire at this time to extend my compliments to Dr. Hawke for the fair and impartial manner in which he has filled that station.

Dr. Meeker. I move we go back to the regular order of business and proceed to the election of those new members whose names have been handed in by the membership committee.

If there be no single objection I move they be declared elected. (The above motion was seconded.)

Dr. Fawke. You have heard the motion? Is there any objection.

(There was no response.)

Dr. hawke. If not I will declare them elected. I so declare.

Dr. Smith. You haven't yet discharged your tellers.

Dr. hawke.

There being no further business for them, a motion that they be discharged will be received.

A Member. I move they be discharged.

Dr. hawke. With thanks?

H Member. Yes.

(The above motion was then put and unanimously adopted.)



(Presenting President Thompson.) Here is Dr. Uinson. Dr. Thompson and I take great pleasure in presenting the new President of the New Jersey Dental Society, Dr. William I. Thompson of Asbury Park. (Loud applause.)

President-Elect Chompson. Gentlemen, I am very glad to stand before you in this capacity to-day. I appreciate the honor and responsibility attached to the office. I thank you for the honor you have granted me and I will do my best

to make this a harmonious and business organization. (Loud applause.)

Dr. Hawke. Dr. Thompson, will you take the chair?

(Dr. Thompson then took the chair.)

I am sorry I have not the official gavel to give you, but I will give you the one I have been using and wish you luck.

I wish you luck, Dr. Hawke. Is there any further business to come before this meeting? I will ask Dr. Vinson to present the Vice-President, Dr. Gelston.

(Presenting Dr. Gelston.) I have another privilege and that is of presenting the newly elected Vice-President, Dr. Gelston. (Loud applause and cries of "Speech.")

Mr. President, and members of the New Jersey
State Dental Society. I thank you very cordially for the honor you have bestowed upon me, but I will not bore you with a speech at this time as I am sure you are more than tired with the work of this meeting. (Applause.)

President Chompson. Dr. Vinson, will you present the Secretary and the Treasurer?

(Presenting Secretary Harlan.) The pleasure is mine. (Loud applause and cries of "Speech, speech.")

Gentlemen, I wish to express my deep appreciation for the honor you have conferred upon me, and I will make it my best endeavor to serve the society nearly as well as Dr. Meeker as may be possible. (Loud applause.)

(Presenting Treasurer Jones.) Mr. President,
I wish to present the newly elected Treasurer, Dr.
Jones of Elizabeth.

Mr. President, Ladies and Gentlemen: I feel it is a very important position that you have placed me in and I will do all in my power to further the best in-

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terests of the society. I have been deeply touched to think that one of the Old Guard presented my name in nomination, and I feel I am the unanimous choice of the organization. (Loud applause.)

President Chompson.

I would like to have Dr. Vinson introduce the new member of the Board of Examiners, Dr. Rood.

Dr. Uincent.

Dr. Rood.

(Presenting Dr. Rood.) It gives me great pleasure to introduce the newly elected member of the State Board. Dr. Rood of Morristown.

Gentlemen, I thank you for the confidence placed in me. I do not feel worthy of that confidence, but hope I can fill the chair of the man who

has served through the last fifteen or twenty years. I shall do my best, and hope to have your approval for all the things that I do; if I do not, gentlemen, come to me and tell me; if I am not doing what is right in your sight I would like to know it. I am your servant, not your lord and master; you have made me what I am. I thank you. (Loud applause.)

I move that a vote of thanks be extended to our retiring President, Dr. Hawke, for the fair and Dr. Fopkins. impartial manner in which he has presided over the deliberations of this body.

(The above motion was seconded and unanimously adopted.)

Dr. Bawke.

Dr. Fawke.

I thank you, gentlemen.

May I have the floor now for just a minute?

Yes. President Chompson.

Before closing I would like to have a vote of thanks extended to our essayists, clinicians and exhibitors, and also to the officials of Cape May and to Mr. John P. Doyle, for their consideration and the privileges they have

enabled us to enjoy. I move that a rising vote of thanks be taken.

(The above motion was regularly seconded and adopted.)

(On motion, it was moved that owing to the lateness of the hour the paper of Drs. Harris and Quimby be read by title and published in the proceedings.)

The above motion was regularly seconded and unanimously adopted. (On motion the society adjourned sine die.)



Recognition of the Services of Dr. Charles A. Meeker, by the New Jersey State Dental Society.

At the recent annual meeting of the New Jersey State Dental Society, Dr. Charles A. Meeker retired from the office of secretary, after serving the society for thirty-six years. He delivered a "Valedictory" (which is published in this issue), and a resolution was unanimously adopted that the members of the society should be given an opportunity of subscribing to a token of appreciation, to be presented to Dr. Meeker.

Dr. Meeker is so widely known throughout the country, and has done such conspicuously good work, both in his own societies and in the National Association of Dental Examiners, that had the subscription lists been open to all, there is no doubt that the sum raised would have been four times greater. But in passing the resolution a restriction was made that this presentation should come exclusively from members of the State Society.

It is very pleasant to report this incident and its successful issue. It is rare indeed that any man should devote thirty-six years to the service of a single society, and it is rarer still to find that service of such a character that it is inseparably intertwined with every stage of advancement made by the society. Much of the progress made by the New Jersey State Dental Society was born of ideas originating in Dr. Meeker's mind, and these and others were carried to success, through his endless and untiring energy as an efficient executive.

In such circumstances it is pleasant to find a society recognizing its indebtedness during the lifetime of its fathful servitor. Too often such expressions take the form of a handsome wreath sent to the funeral.

The committee in charge of the presentation to Dr. Meeker, namely, Drs. C. E. Smith and C. W. F. Holbrook, of Newark, and Dr. S. C. G. Watkins, of Montclair, arranged a little complimentary dinner to Dr. Meeker, at the "Washington," in Newark, October 22d. They presented him with a handsome scarf pin of diamonds and rubies surrounding a particularly brilliant sapphire. In pursuance with the instructions of the society they also gave him a set of resolutions, engrossed.

The resolutions, after setting forth Dr. Meeker's faithful and efficient service, certify to the pride with which his fellow-members regard his record, and recognize that his relations with them has won distinction for himself and credit and honor for the society. Deep appreciation is expressed for his prompt and cheerful discharge of his duties, and in extending to him the society's token a heartfelt assurance of its wishes for his continued health and prosperity is duly made. The gift,

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the resolutions explain, is not to be regarded by the recipient as a measure of the donors' esteem, but simply as an expression of it.

Dr. S. C. G. Watkins at the presentation of the engrossed resolutions and diamond stickpin to Dr. C. A. Meeker, said:

"Dr. Meeker, we are gathered here this evening for the purpose of doing honor to you. At a meeting of the New Jersey State Dental Society, held at Cape May last July, there was a committee appointed by that society of which I have the honor of being chairman. This committee was appointed for the purpose of raising funds to procure a suitable present and prepare suitable resolutions to be presented to you, as a token of the esteem and respect in which you were held by the New Jersey State Dental Society at the close of your official career, after having been its secretary for thirty-six years. As chairman of that committee I appointed Dr. Smith secretary and treasurer. As Dr. Smith was the instigator of this movement and also raised most of the money and did the work of the committee, it is only fitting and just that he should make the presentation to you on this occasion and I now take pleasure in introducing him for that purpose."

Dr. Smith then in well-chosen remarks presented the resolutions and pin.

Because of the fact that there had been a split in the State Dental Society during the year preceding the annual election in July last, Dr. Meeker had been in a quandary over the proposed testimonial to him, and that explained some parts of his acceptance speech. He said, in part:

"I am free to say that having been the storm centre of many invidious remarks during the year I had some hesitancy in accepting any gift, and it caused me some sleepless nights. Mature consideration made me realize that Dr. Smith's resolution came from the heart and was spontaneous, and that refusal on my part would insult many of my friends. This induced me to allow the committee to pursue its course."

In conclusion Dr. Meeker said:

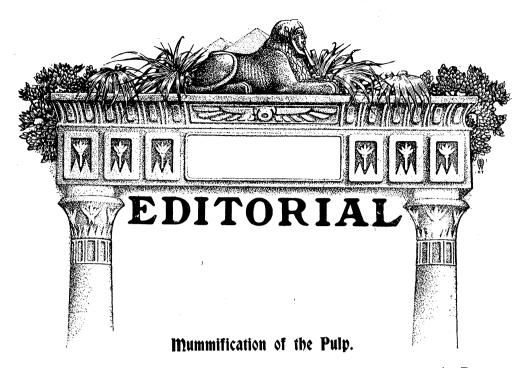
"It's a long lane that has no turn, and time will give credit to all who have unselfishly labored for the good of their profession and the well-being of the State Society. I thank you, gentlemen, for your labors as a committee, and also desire you to extend my thanks to the society for this beautiful gift."

The names appearing on the resolution as donors are as follows: Dr. R. A. Albray, Dr. T. N. Bradfield, Dr. George Baxter, Dr. W. F. Cook, Dr. Joseph Elin, Dr. A. Fishman, Dr. C. W. F. Holbrook, Dr. W. Holmes, Dr. E. M. Hind, Dr. S. S. Hawley, Dr. D. W. Kleinhans, Dr. H. Kaufman, Dr. J. Ross, Dr. C. E. C. Smith, Dr. Marcus Strausberg and Dr. J. S. Vinson, all of Newark; Dr. A. M. Applegate, of Asbury



Park; Dr. F. C. Barlow, of Jersey City; Dr. M. R. Brinkman, of Hackensack; Dr. C. E. Beers, of East Orange; Dr. Fred C. Carr, of Long Branch; Dr. W. W. Crate, of Camden; Dr. J. W. Curtis, of Hackettstown; Dr. W. G. Chase, of Princeton; Dr. Wilber M. Daily, of New York; Dr. Charles C. Davis, of Plainfield; Dr. William H. Daniels, of Paterson; Dr. Charles H. Dilts, of Trenton; Dr. George Evans, of New York; Dr. Chauncey Egel, of Westfield; Dr. Walter Farr, of Hackensack; Dr. Frank Finkelstein, of Paterson; Dr. George H. Griffith, of Trenton; Dr. Leon Goble, of Toms River; Dr. J. P. Haggerty, of Sussex; Dr. George H. Hague, of Elizabeth: Dr. L. M. Heckman, of Jamesburg; Dr. Frank L. Hindle, of New Brunswick; Dr. William F. Hodges, of Perth Amboy; Dr. Henry A. Hull, of New Brunswick; Dr. C. W. F. Hoblitzell, of Jersey City; Dr. W. W. Hawke, of Flemington; Dr. Charles F. Jones, of Elizabeth; Mr. Charles Kirby, of New York; Dr. J. J. Keator, of Hackensack; Dr. W. H. Kerr, of Union Hill; Dr. B. F. Leonard, of Plainfield; Dr. H. J. K. Marashlian, of Jersey City; Dr. Mary Morrison, of Salem; Dr. Frank L. Manning, of Red Bank; Dr. R. Ottolengui, of New York; Dr. W. H. Pruden, of Paterson; Dr. William Rose, of Red Bank; Dr. Robert Roessler, of Hoboken; Dr. V. D. Rood, of Morristown; Dr. F. A. Rightmire, of Paterson; Dr. Arthur Slade, of Millville; Dr. W. E. Stelle, of Plainfield; Dr. Robert Stevenson, of Kearny; Dr. Moore Stevens, of Atlantic City; Dr. W. E. Truex, of Freehold; Dr. Morris Tepper, of Bayonne; Dr. A. J. Torrilhon, of Hoboken; Dr. G. L. D. Tompkins, of Asbury Park; Dr. S. C. G. Watkins, of Montclair; Dr. W. W. Walker, of New York; Dr. H. E. Williams, of Red Bank, and Dr. Owen Wooley, of Long Branch.





After considerable hesitation we publish in this issue a paper by Dr. W. H. Hoyl, of Dawson, Ga., advocating the "mummification" (?) of tooth pulps. It is a serious question sometimes for an editor to determine to what extent he may censor the papers of contributors. Where he could present indubitable proof that the theories advanced are erroneous, or that their publication would be mischievous, he would be warranted in excluding the communication. But where a writer presents views which are novel, the fact that the editor may hold a contrary opinion is not sufficient excuse for returning a manuscript. This will explain the seeming anomally that many papers are printed, with which journal editors are not in accord.

In the present instance it has seemed advisable to publish Dr. Hoyl's article, present a few counter arguments and leave the subject open for discussion, and if possible, final settlement.

Ancient and Modern Mummification. There can be no debate over the desirability of discovering a method of pulp canal treatment which would save patient and operator the time and labor of aseptic cleansing and filling. But no such method can be adopted by a conscientious profession, unless



it can be proven that the "easier way" produces results as permanently satisfactory as the method now universally recommended. And this is just what the advocates of "pulp mummification" do claim. We have been told before, and Dr. Hoyl again reminds us, that the ancients successfully practised mummification.

Let us pause here long enough to consult an encyclopedia (which-some of those who have written on pulp mummification should have done long ago) and determine, if possible, just how appropriate this word "mummification" is to the pulp treatment advocated.

A very cursory reading shows that "mummification" and "embalming" are both terms which apply to methods of preservation of that which is entirely dead; that this mummified dead thing is always desiccated, or made dry, and thereafter extreme precautions are taken for keeping the "mummy" free from inroads of moisture. Can there be any scientific likeness between the swathed mummy securely protected in a stone sarcophagus and the dead remains of a dental pulp, left within a tooth root, with one terminal in constant contact with the tissues and fluids of a living body, at body temperature?

The recommended method of mummifying a pulp is a simple process requiring about half an hour. Ancient mummification, we are told, comprised three processes. "The first of these was the process of evisceration, cleansing, etc., which occupied fifteen or sixteen days; the second was the salting or bituminizing and took nineteen or twenty days; the third was the spicing and bandaging and took thirty-five or thirty-six days, making seventy or seventy-two days in all."

Of course, the above describes a method of preserving an entire body, so that it does not logically prove that it would take so long to preserve so small a mass as a dental pulp. But it should be noted that the objects of the two processes are totally different. True mummification aimed to prevent the contamination of the body treated, whereas so-called pulp mummification is intended to protect adjacent living tissues from contamination by the part treated.

Modern methods, now called "embalming," differ from the old in detail, but not in purpose. The endeavor is to preserve that which is completely dead, and after treatment, the embalmed body is hermetically sealed up for burial.

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Remove an ancient mummy from its sepulchre; take off its wrappings and throw it out into a field unprotected from the elements. Beside it place a similarly stripped embalmed corpse taken from its metallic casket, and what would we expect? Would we be surprised to find these bodies disintegrating, and soon serving as fertilizer for the adjacent soil? The same must be true of dead pulp tissue left within roots of teeth. Or at least we must believe this to be true until it has been proven otherwise. We must believe that after "mummification," within a year, or five years, or ten years, these "mummified" pulps, because of their environment, must serve as inviting pabulum for infectious germs.

Che Immoral Aspect of Pulp Mummification.

There is another and quite serious side to this discussion. It is not claimed, even by the most ardent advocates of "pulp mummification," that the treatment is applicable where the pulp has been long dead, and infection has already ensued. In such

cases, then, the "easiest way" must be abandoned, and the practitioner is compelled to trudge over the "harder road" of complete cleansing, sterilizing, and aseptic root canal filling. To accomplish this, in these more difficult and more serious cases, the operator should have all the skill possible for him to acquire, and nothing engenders skill more than constant practice. Therefore, as "pulp mummification" is not applicable in cases of putrescence, nor where the morsal third of the canal is choked with secondary dentine, nor in senile conditions where the morsal two-thirds of the canal have been obliterated, wholly or in part, why should we advise men, especially young men coming into the profession, to adopt this "easiest way," when, after all, it can be applied only to the "easiest" cases that come into our hands?

After Croubles. Perhaps the strongest argument offered is that teeth thus treated "give no trouble" thereafter. This question of the "trouble" that follows the imperfect, or unscientific, or non-aseptic treatment of

pulp canals is the most serious problem now confronting the dental world. Usually a statement of this kind has a very circumscribed meaning. If the tooth treated gives no pain; if it does not become sore upon percussion; if it does not develop an active and acute alveolar abscess; in short, if it is retained as a painless unit in the masticatory apparatus,



that these teeth which may not seem to be giving "trouble" may really be working havoc for the patient. Radiography has discovered literally thousands of these non-troublesome teeth, afflicted with septic areas about their apices, serving as sources of infection and causing distant systemic disorders of the most painful and often dangerous character, not infrequently terminating in death.

Conscientious Root Creatment.

The conscientious practitioner of the future, therefore, must not allow himself to be attracted to pulp mummification, nor to any other mode of treatment, solely because of its labor-saving aspect.

Nor must he consider his work solely from a dental aspect. He must have ever before him the spectre of disease, which might be actually inaugurated by his own laziness or incompetence. The classic treatment of roots involves aseptic cleansing to the very ends of the canals, and aseptic filling of the canals. Dr. M. L. Rhein has repeatedly said, that it were better to sacrifice the entire crown to gain access and complete the work, rather than to leave the root but partly treated. To this statement it may be added, that it were better to go on and sacrifice the root: itself, rather than to leave within the body, and in contact with healthy tissues, a diseased root, which must eventually spread disease and disaster throughout the entire body. Fortunately, even though it be true that there may be many roots which cannot be aseptically treated to their apices, it will not always follow that extraction need be practised. With the aid of radiography, the true condition may be learned. We know rather than guess, when the root end is so tortuous that it cannot be explored, and from the radiograph we may decide either upon amputation of this tortuous portion or, if need be, the extraction of the root itself.

In brief, the advocacy of mummification, or the filling of roots with plastic preservative pastes, teaches the younger man to adopt easy methods of work, and thus deprives him of that practice which is needful to make him both skilful and conscientious.

On the other hand, the doctrine that all roots may be cleansed and aseptically filled to their apices, is the better teaching, even though in rare cases it be not true. The fact that other men claim to do things

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breeds in us the ambition and self-confidence that eventually make us likewise capable of doing these things. Thus, if we continually assert that "all root canals may be cleansed and filled," the assertion will become more true year by year; the dental profession more and more skillful, and less and less responsible for the bodily ills now traceable to bad dentistry—or what Hunter has called "septic dentistry."

Che Management of Children.

It has been our hope that all the general practitioners among our subscribers, read the articles in our department of Orthodontia, because, even though they may not elect to practice the art, they could in this manner become intelligent supervisors and critics of the work done by the specialists into whose care they recommend their young patients. In this issue, however, appears an article to which we are pleased to call especial attention.

Dr. D. P. McMillan, Director of the Department of Child Study and Educational Research, of the Chicago Public Schools, contributes a splendid paper outlining methods of obtaining the co-operation of the child patient, which cannot fail to be helpful to all who read it. In the course of the discussion, Dr. Lloyd Lourie courteously, but truly, points out that the orthodonist is much handicapped at the outset of his treatment, by the dread which little patients have acquired during dental operations. In the future this should be minimized as much as possible, and general practitioners should endeavor to gain the confidence, and even affection of children, which all successful orthodontists find it easy to acquire.



SOCIETY ANNOUNCEMENTS

National Society Meetings

National Dental Association, Kansas City, Mo., July, 1913.

American Society of Orthodontists, Chicago, Ill., July, 1913.

Institute of Dental Pedagogics, Pittsburgh, Pa., January 30, 1913.

Indiana State Dental Association.

The Fifty-fifth Annual Session of the Indiana State Dental Association will be held in the Claypool Hotel, Indianapolis, May 20, 21, 22, 1913.

The officers of the association recently met at Indianapolis and perfected plans for a three-days' "post-graduate course." The very best instructors and specialists are being secured for each day.

The course will be as follows: Tuesday, "Humanitarian Dentistry," Wednesday, "Preventive Dentistry," Thursday, A. M., "Prosthodontia," Thursday P. M., a great table clinic. The clinic will be held in the hotel.

No tuition fee for the members of the association, or visitors from outside the State who are in good standing in their State association, but all others desiring to take this course must arrange their tuition fee with the secretary..

O. U. KING, Secretary.

Huntington, Ind.

North Dakota Board of Dental Examiners.

The next meeting of the North Dakota Board of Dental Examiners will be held in Bismarck, North Dakota, on January 14, 1913, continuing for four days. All applications must be made to the secretary by January 4, 1913. No other meeting will be held until July 8, 1913. For further information apply to

F. A. BRICKER, Secretary.

Fargo, N. D.

963 **Dec.**



Minneapolis Dental Society.

The Alumni Dental Society of Marquette University, Milwaukee, has communicated to us the rather disconcerting fact that the only dates on which they can possibly secure the building they desire for the holding of their meeting are January 24th and 25th, the dates advertised for our clinic.

Being anxious to promote the greatest harmony in the work of all dental organizations, we have agreed to change the date of our meeting.

We feel sure that you will be glad to cooperate with us in getting notice of this change before the profession effectively and at the earliest possible moment.

Our meeting will now be held on Friday and Saturday, January 17 and 18, 1913.

O. DE FOREST DAVIS, Secretary.

Hrizona Board of Dental Examiners.

There will be a meeting of the Arizona Board of Dental Examiners November 25, 26, 27 and 28, 1912, at Phoenix. Candidates should have in their application, and fee of \$25 accompanying same, at least twenty days before the meeting. Theoretical examination includes the following subjects Anatomy, Physiology, Chemistry, Materia Medica, Therapeutics, Metallurgy, Histology, Pathology, Operative and Mechanical Dentistry, Oral Surgery; practical demonstration of skill in operative and mechanical dentistry, and candidates should come prepared with instruments and material for making fillings and crowns for the mouth.

Tucson, Arizona. Dr. W. A. Baker. Secretary.

New Jersey State Dental Society.

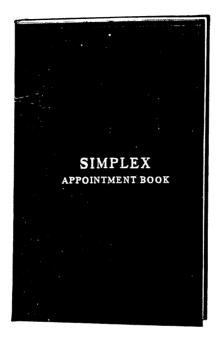
At the forty-second annual meeting of the New Jersey State Dental Society held at Cape May, July 17th to 19th, 1912, the following officers were elected for the year 1912-1913: W. I. Thompson, President, Asbury Park; C. F. Jones, Treasurer, Elizabeth; W. H. Gelston, Vice-President, Camden; E. W. Harlan, Secretary, Jersey City; W. F. Naylor, Assistant Secretary, Somerville. Executive Committee, W. H. Gelston, Chairman; W. F. Barry, Orange; H. Fowler, Harrison; J. I. Woolverton, Trenton; C. P. Tuttle, Camden. Membership Committee, Jos. Kussy, Chairman, Newark; A. D. Burton, Secretary, Asbury Park; F. Rightmire, Paterson; J. F. Crandall, Atlantic City; H. I. Beemer, Newton.

In addition to these Vernon D. Rood, Morristown, N. J., was elected for a term of five years as a member of the State Board of Examiners to succeed B. F. Luckey, Paterson.

EDWIN W. HARLAN, Secretary.

57 Crescent Ave., Jersey City, N. J.

SIMPLEX APPOINTMENT BOOK



114 pages for Day Appointments.

48 special pages for Evening Appointments on colored paper. Extra wide spaces between lines.

Pocket size, $4\frac{1}{2} \times 7$.

Strong Black Leather Binding, reinforced.

Gilt Edge and Gilt Lettering.

Ribbon Book Mark.

Finest Bond Paper.

Not dated—no waste if not used daily.

Three yearly calendars, 1913, 1914 and 1915.

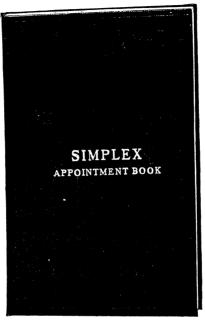
Refined and Elegant.

Price 65 cents.

See other side

CONSOLIDATED OD DENTAL MFG. CO.

SIMPLEX APPOINTMENT BOOK



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Illustration Half Actual Size

See other side

A syrup of iron that will not injure the dental enamel.

Iron solutions, with few exceptions, are destructive to the teeth. Every dental practitioner of experience knows this. As a frightful example of the injurious effects of iron in liquid form, read on page



1006 of the *Dental Cosmos* of September, 1912, what Dr. Edwin T. Darby says of one of his patients who had been taking iron in acid solution. "When I looked into her mouth," says the doctor, "I was horrified to find that her teeth were ruined. They were literally decalcified."

Such destruction of the teeth is unnecessary and inexcusable.

SYRUP IRON CHLORIDE

(WELD)

obviates all risk to the dental enamel. It was devised by an eminent New York practitioner of medicine with just this object in view, and well it serves its purpose. In the preparation of Syrup Iron Chloride (Weld), which has been entrusted to Parke, Davis & Co., the excessive acidity of the well-known tincture of iron chloride is neutralized, and sugar is added to form a palatable syrup, which is then pleasantly flavored with wintergreen. Each fluid-

ounce of the syrup is equivalent to 20 minims of Tincture Ferric Chloride, U.S.P. The dose is one teaspoonful to one tablespoonful.

Syrup Iron Chloride (Weld) is a valuable tonic in chlorosis and other forms of anemia—in fact, in any condition in which iron is indicated.

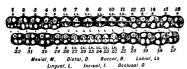
Dental practitioners, wouldn't it be well to call the attention of your medical friends to this efficient, palatable and harmless syrup of iron?

Supplied in pint bottles.

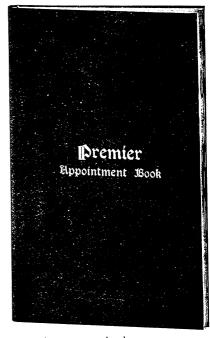
Home Offices and Laboratories, Detroit, Michigan. Parke, Davis & Co.

Premier Appointment Book

Illustrations are half-size



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Pocket size—4 x 6 ¾; 248 pages; special section for evening appointments on colored paper; pages are not dated, and therefore not wasted if not used; wide space between lines; diagram on every page; improved code of abbreviations to show services rendered, Sundays included; bound in black limp leather with gold-leaf lettering; pages are gilt edged. Price 65c. each.

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This illustration shows two opposite pages,—half size

How Are Your Accounts?

AN you tell exactly how any one account stands without wasting a lot of valuable time in thumbing over dead accounts and hunting through various books? If you can't, then it's time you used

The Triggs' System of Dental Charts

With this system, one card gives the whole record of a patient's account. The date and character of any operation, the time expended and the fee charged are revealed by a glance at one card. The amount of money paid is entered upon the same card. Nothing could be simpler or easier. Compare the directness of this system with the old fashioned way of making an entry in one book, transferring it to another and then having to look in an index to find the account.

The Triggs' System simplifies the keeping of accounts. It is so easy to jot down a record on the card where it belongs that there will be no temptation to defer entering it until some future time. When you use the Triggs' System you are not at the mercy of your memory.

PRICES:

Complete outfit in metal case containing 300 lithographed charts, 15 Cash Acct. cards, 1 set of 3 indexes and 1 pad of examination blanks . \$5.00

 Charts......per hundred
 \$.75

 Indexes.....each
 .50

 Examination blanks....per pad
 .15

Consolidated Dental Mfg. Co.

Compare These Two Bridges



Fig. 1. A seven tooth bridge made with Facings

Figure 1, Facings

Gold cusps

Artificial restoration with unsightly gold cusps and backings

Weight of gold 9 pennyweight, 11 grains

Cost of Gold \$11.35

Not hygienic; presence of hypertrophy and hyperemia

Conventional cusps and faulty occlusion

Partial attachments of facings and grinding of facings necessary

Leverage concentrated on pins of facings

Repairing costly and laborious, usually involving renewal of entire bridge

Discoloration and damage in soldering; translucency spoiled by backings



Fig. 2. A seven tooth bridge made with GOSLee Teeth

Figure 2, GosLee Teeth

Porcelain cusps

Natural and life like restoration, only porcelain visible Weight of gold 6 pennyweight

Cost of gold \$7.20

Perfect sanitation with smooth surface adjacent to gums
Anatomical cusps

boxed by cast or swaged gold and cemented to post

No leverage; stresses are distributed through vertical post and gold box

Any individual tooth is replaced instantly

bostee Teeth are set without heat or backings and retain their beautiful natural translucency and That Live Tooth Appearance

THE CONCLUSION IS OBVIOUS USE BOSLEE TEETH

CONSOLIDATED (TO DENTAL MFG. CO.

NEW YORK

CHICAGO

CLEVELAND

BOSTON

DETROIT

PHILADELPHIA

It Is Generally Recognized

That Baked-in Pins Produce the Only Successful Pins for Porcelain Teeth

That is the reason why all good teeth have been made that way for years. This long-established method has never been seriously questioned or criticised, and they are the only teeth which have stood the test of long usage.

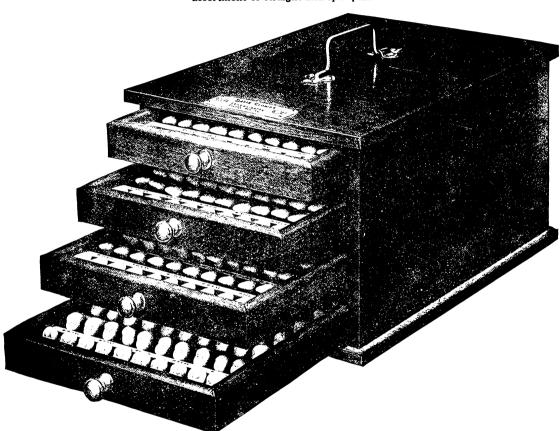
All Consolidated Pins Are Baked In The Porcelain

They are not jointed or mechanically fastened; they are not coated, covered, built-up or plated. They are Simon Pure platinum or **METALITE**, baked-in, and that is the reason no one ever has any trouble with them.

CONSOLIDATED DENTAL MFG. CO.

Standard Assortment Davis Crowns No. 2

Consisting of 370 crowns and an assortment of straight and split pins.



¶ A private stock in a mahogany cabinet.

Teach crown has its own numbered space in this cabinet.

¶ There is no better way to keep your stock in good order and down to the minimum than in this cabinet.

It is a time saver because you do not need to make casts and wait for the dental depot to fill your order.

It is a money saver because it prevents an overstock of undesirable molds and shades and also the unnecessary purchase of crowns when you have what you want somewhere on your shelves but cannot find it.

¶ It has many other advantages; see following page.

The Standard Assortment

OF

370 Davis Crowns No. 2

Standard Assortment No. 2 contains the very best and most frequently used molds and shades required by the average practice. It is a very carefully selected stock, based on those molds and shades which have been most commonly ordered by dentists during the past ten years.

In offering this to the profession we render what we believe will be of considerable assistance to every dentist who desires to keep his stock down to a minimum and still always have on hand a useful supply of crowns and have it in good order. As the same space is always reserved for the same crown by a label showing its mold and shade number, it will be a simple matter to replenish your stock whenever that space is vacant. This system will eliminate carrying a large stock of crowns that you seldom have occasion to use and the annoyance of not being able to find the crowns required when you most need them.

Standard assortment No. 2 is made up as follows:

Sets of 6s - - 10 sets in best molds and shades Cuspids 2s - - 20 sets in best molds and shades Centrals 2s - - 50 sets in best molds and shades Laterals 2s - - 50 sets in best molds and shades Bicuspids 2s - - 35 sets in best molds and shades

Price, including 100 straight and 17 split pins and mahogany cabinet, \$100.00.

You save \$36.20. The regular price for this quantity when bought singly is \$136.20.

Consolidated @ Dental Mfg. Co.

Main Office: 130 Washington Place, New York

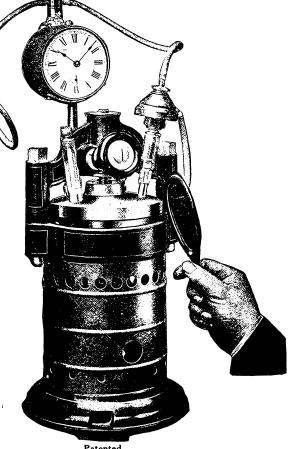
Chicago, 132 North Wabash Avenue Cleveland, 499 Colonial Arc. Detroit, 403 Washington Arc.

Boston, 120 Boylston Street Philadelphia, 1419 Real Est. Tr. Building New York, 45 West 34th Street The **Final Test**

In this test the slightest escape of vapor through the packing is instantly detected on the sensitive glass of the mirror.

Every Consolidated Vulcanizer

is subjected to this test before it leaves our factory. Every Vulcanizer we send out is steam-tight by the mirror test.



Not enough vapor escapes through the packing to dim a mirror. This is a hard and exacting test but every Vulcanizer we make must prove itself to be tight by the mirror before we let it leave our factory.

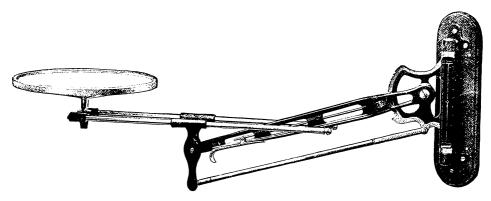
- This test is in keeping with the careful methods we adopt in making all the individual parts of the Vulcanizer.
- We use drop forgings where others use castings; heavy seamless drawn copper pots where others use pots of brazed tubing with brazed bottoms.
- ¶ By our method of manufacturing, you secure a Vulcanizer with a ten fold margin of safety and

Made in the Consolidated Way

CONSOLIDATED (DENTAL MFG. CO.

THE

New Consolidated No. 9 Bracket is

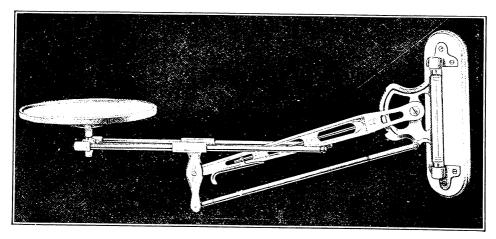


The longest
The strongest
The best looking
Dental Bracket

Length, fully extended, 49 inches.

Will sustain over 200 lbs., dead weight.

It is an ornament to a dental office. Its beautiful, simple, unobtrusive lines are much desired by dentists who so arrange their offices to eliminate the "machine shop" appearance.



9-A Nickel Plated without table \$12.00 9-C Oxidized Copper without table \$12.00 9-B Black Enamelled without table 12.00 9-E White Enamelled without table 14.00 9-M Mahogany Finish without table \$15.00

For Sale by all Leading Dental Dealers

CONSOLIDATED DENTAL MFG. CO.



CRESCENT ALLOY

produces the fillings which will be a credit to you now and in after years

Consolidated 🐯 Dental Mfg. Co.

Don't Be Cruel!

The Consolidated Crown Slitter slits crowns painlessly and cleanly. With it you can take off the crown almost without the patient's knowledge. It saves the patient from torture and enhances your reputation for gentleness. It will cut a crown anywhere -front, back or side, and a single compression of the handles does it.

If you try to remove a gold crown from an aching tooth with an improvised instrument, you are doing your patient an injustice.

Price \$3.50 at all dental dea!ers

CONSOLIDATED (T) DENTAL MFG. CO.

Chicago

New York

Boston

Detroit

Philadelphia

11a

Cleveland

PRESTO Quick Filling Water Syringe



With this syringe the water is ejected in a fine stream with ample force to dislodge the debris etc., without flooding the mouth.

When filling, the movable point in the top recedes and permits a rapid intake through a large opening.

The bulb is powerful and all the parts are simple and strong. By using a specially designed bulb and stem, there is no leakage between these parts, and no wires or other makeshift attachments are required to hold the bulb on the stem.

None of the parts is interchangeable with those of other makes.

Price, each \$1.00

Consolidated (Dental Mfg. Co.



Consolidated Casting Wax

IN CONES OR STICKS



Your Gold Casting Depends Upon It.

It leaves no residue.

It is easy to manipulate.

It is not distorted by atmospheric and thermal changes between mouth and investment.

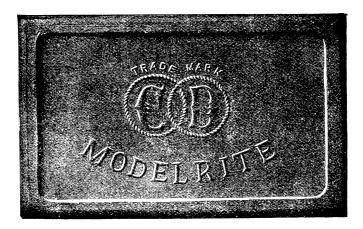
When you use Consolidated Wax, the casting is an exact replica of the impression.

Price per box, cones or sticks, 50c. each

Consolidated 📆 Dental Mfg. Co.



DELRIT



It softens in hot water and is pliant and waxy to bite into, insuring accurate impressions of even the softer tissues of the mouth. It hardens quickly and evenly. It becomes very hard and it does not warp. It is not sticky and does not shrink; thus, absolutely accurate impressions will always be secured with it. Its accuracy, cleanliness and convenience, and especially its low price now place MODELRITE far superior to plaster for impressions.

It produces bright strong clear impressions defining the lights and shades more sharply than any other material.

PRICES:

Per half-pound	box of 4 cakes	 	 	38c
Two boxes for		 	 . . .	75c

For sale by all leading dental dealers



New York **Boston**

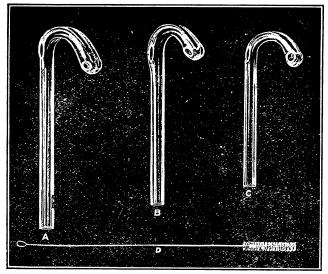
Chicago Detroit

Cleveland Philadelphia

De Witt Saliva Ejector

Patented

Simple, Effective and Strong



This Ejector overcomes the drawing-in of the soft tissues of the mouth, so disagreeable to the patient and annoying to the operator.

It cannot become dammed, clogged or air-bound.

The large holes in the tip will carry off thick, heavy saliva, or the foam from the spray bottle, as easily as they eject water.

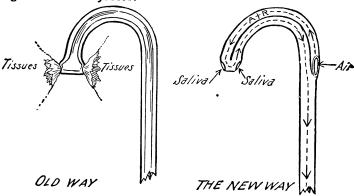
Cannot Clog

The most modern and improved fountain spittoon is equipped with the De Witt Clogless Saliva Ejector. All Clark spittoons will hereafter be equipped with the De Witt Clogless Saliva Ejector.

There are three sizes, to conform to the varying depths of different mouths.

By selecting the right size, the weight is borne by the teeth preventing pressure on the soft tissues.

It is the only Saliva Ejector that can be thoroughly cleansed.



PRICES

Clear Glass Tubes—Any Size, \$.25 each, \$1.25 per ½ doz., \$2.50 per doz.

Metal Tubes " " 1.50 each

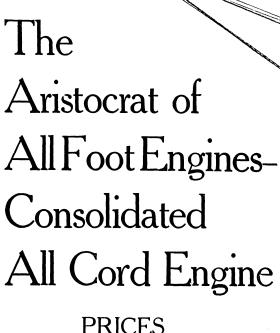
Brush for cleaning tubes - .05 each

For sale by all leading dental dealers and by our retail depots

Consolidated



Dental Mfg. Co.



With Wrist Joint and Regular Handpiece \$50

With Regular Handpiece, Wrist Attachment and Slip Joint

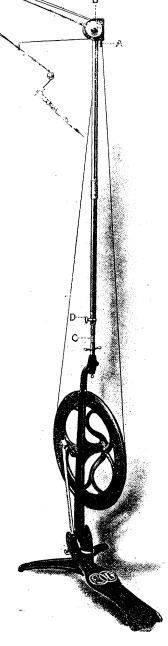
\$55

With All Cord Handpiece \$52

CONSOLIDATED



DENTAL MFG. CO.



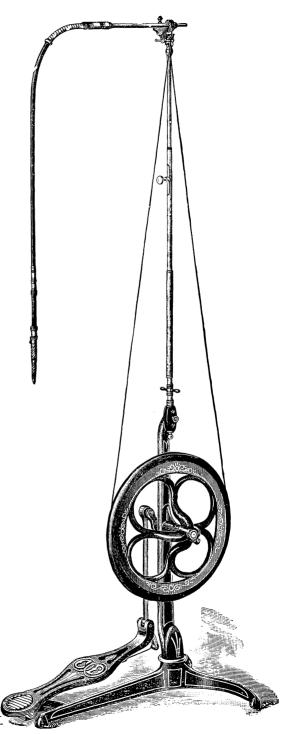
Consolidated
Engine
No. 31
Easy-running
Powerful
Quiet
True
Smooth
Reliable

Price Complete \$35.00

CONSOLIDATED



DENTAL MFG. CO.



"Glide-Over" Engine Belts

"GLIDE-OVERS" are popular and successful because they

are made with such a perfect splice.

"GLIDE=OVERS" are practically spliceless in running They glide over the pulleys quietly, without jar or They are made of a specially woven, tough fabric vibration. which prevents slipping and streching and makes them more durable and serviceable than leather. There is none stronger.

"Ask for "GLIDE=OVERS."

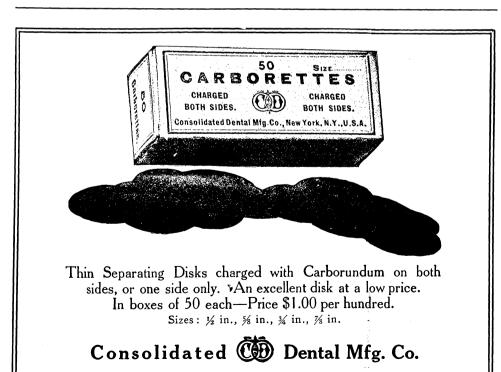
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No. 1—Endless Belt for side-wheel Engines, "E. & J.," each	.24 .24 .24	No. 6—Endless Belt for Elliot Suspension Dental Engine, length must be specified on order, each No. 7—Endless Belt for Columbia All-cord Electric Engines, up to and including 197, each No. 8—Endless Belt for Columbia All-cord Engines, above No. 197, each No. 9—Endless Belt for Columbia Cord Suspended All-cord Engines, for either alternating or direct current, each Special belts to order, per yard, including splice.	.2
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ordering belts for engines requiring special size of belt, give the exact length, which c found by improvising a belt with a piece of twine and measuring the length of same.

CONSOLIDATED



DENTAL MFG. CO.



BEWARE OF IMITATIONS

THERE IS NO OTHER

"Perfection Pink Rubber"

BUT THAT MADE BY

Consolidated Dental Mfg. Co.

Ordinary Pink Rubbers are frequently represented as "Perfection Pink, same as Consolidated's," but that is a misappropriation and illegitimate use of a good name for the purpose of deceiving you. No other person, or firm, has the right to use the name.

You can always recognize genuine "Perfection Pink Rub-

ber" by the embossed pink box with gold seals.

Each sheet bears our name and trade-mark and directions.



PRICES:

Quarter lb., \$1.50 Half lb., \$3.00

Pound, \$6.00 Five lbs., \$25.00

CONSOLIDATED DENTAL MFG. CO.

LISTERINE

Listerine is a fragrant non-toxic antiseptic composed of volatile and non-volatile constituents, agreeable to the taste, refreshing in its application and lasting in its antiseptic effects.

Listerine is of well proven value in the antiseptic treatment of all parts of the human body, whether by spray irrigation, atomization or simple local application, and is well adapted to the requirements of general

DENTAL PRACTICE

To cleanse and deodorize before operating; To wash and purify the mouth after extracting teeth; To treat antiseptically, diseases of the mouth; To prescribe as a detergent, prophylactic mouth wash for daily use in the care and preservation of the teeth.

The prompt action of Listerine in cleansing and purifying the mucous surfaces and its cooling, refreshing effect upon the tissues is very grateful to the patient. Listerine has received the highest recognition as the best general antiseptic for a Dentist's Prescription.

THE

DENTIST'S

A leaflet designed to convey useful information respecting the care of the teeth. Supplies of this interesting treatise on oral hygiene are furnished free of expense to dental practitioners for distribution among their patients. A specimen copy, together with an order-form, will be sent upon request.

PATIENT

LAMBERT PHARMACAL COMPANY LOCUST & TWENTY-FIRST STS., ST. LOUIS, MISSOURI

Be assured of genuine Listerine by purchasing an original package

WANTS. FOR SALE ETC.

6584—FOR SALE—One Pelton & Crane Electric Furnace for porcelain inlay and crown and bridgework; complete outfit Brewster's porcelains. One Electro Dental Mfg. Co.'s electric mouth lamp and mirror with 6 feet of cord. One Lee S. Smith electric mallet for gold fillings. All in good fix, price \$20. Address Room 509, State Bank Bldg., Little Rock, Ark.

6585—FOR SALE—A good paying new advertising office in Cleveland, Ohio. Best location and cheap rent, everything O. K. and worth investigating. Address No. 13, care ITEMS OF INTEREST, 130 Washington Place, New York.

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Continued from preceding page.

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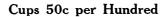
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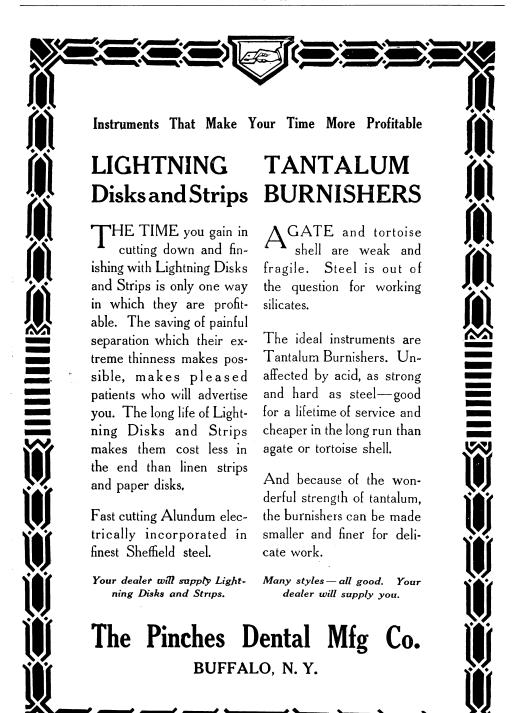
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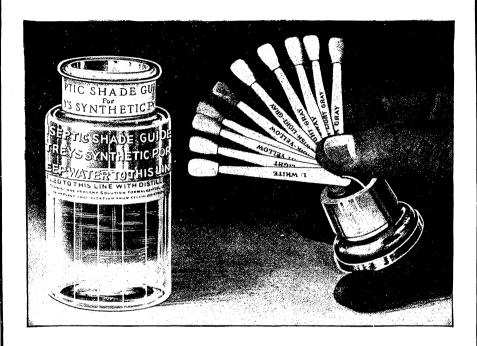
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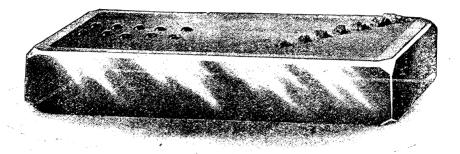
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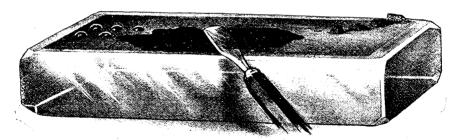
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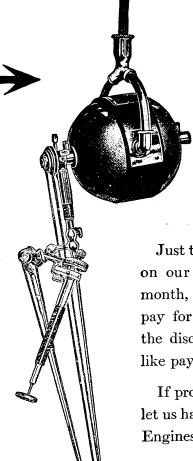
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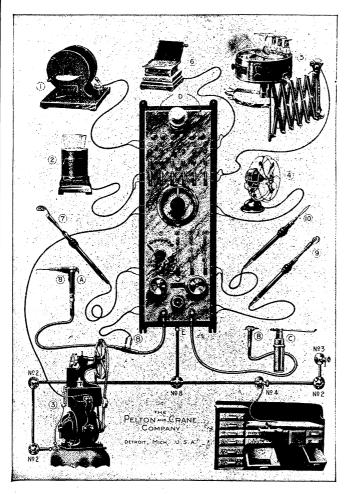
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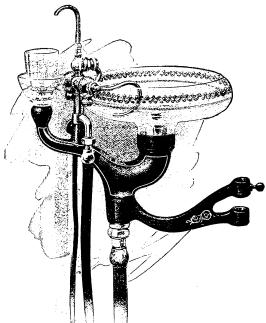
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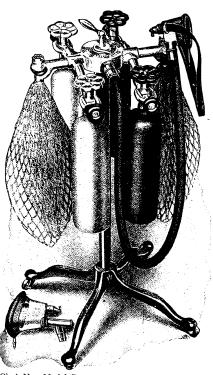
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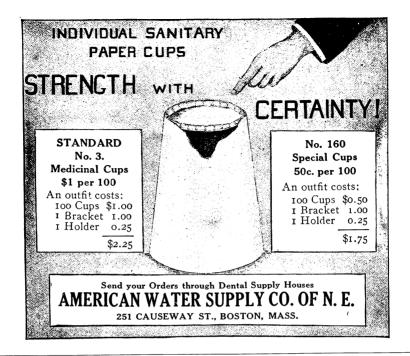
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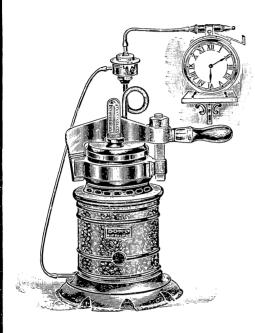
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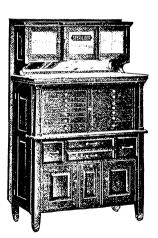
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In the coated tongue alone lurk millions of threatening germs. Such germs are also found in every case of Dental Caries and in every case of Pyorrhea, and they conceal themselves in the recesses of the Tonsils.

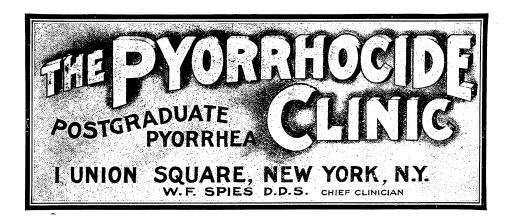
The Dentist must fill the decayed teeth and remove irritating deposits. The Physician must find the cause of the furred tongue and the inflamed throat. Both of them are immensely aided in their task, whether in preventing or curing diseases of the mouth and throat, when the patient makes daily use of KOLYNOS.

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The Powerful, Non-Irritating Dental Antiseptic and Analgesic

PHENANDYNE

- Will not irritate, even when in contact with the tongue. No risk of sloughing.
- ¶ Highly commended by prominent dentists.
- Supplied in glass-stoppered bottles to fit the dental cabinet.

Your dealer will supply you

Write for FREE sample

Schieffelin @ Co. :: New York

The Dentiscope



Perfect Light for the DENTIST.

A lamp with every good feature that a dentist can name.

Gives soft, agreeable light, parallel rays, high intensity, no shadows. Conserves the dentist's eyes. Makes night work same as day work.

Made for 110 or 220 volts, either A. C. or D. C. Handsomely finished in nickel. :: Send for descriptive literature. ::

Pittsburgh Electric Specialties Co., 927 French Street:: Pittsburgh, Pa. 6

Chronic Gingivitis

will frequently respond to the mild tonic-astringency of

Pond's Extract

when other measures have proven disappointing.

The following has been found exceedingly effective in all gingival affections:

\mathbf{R}

Rescreingr. xxx	
Sodii Boraticdr. is	
Fld. Hydrastisoz. ii	
Pond's Extractoz. iv	
Aq. Cinnamomiq. s. ad. oz. viii	į

M. Sig.—One or two tablespoonfuls to a quarter glass of water as hot as can be borne, and used as a mouth wash every two, three or four hours, according to patient's needs.

Pond's Extract Co.

w York and London

The First and Only Preparation for the Mouth with HYDRO-NAPHTHOL in an Agreeable and Effective Solution

Griswold's Hy-Nap Mouth Bath has solved the problem of presenting Hydro-Naphthol in the form of a solution carrying a full measure of its potency.

The dental profession now has available an antiseptic solution of great germicidal strength—a powerful detergent and prophylactic—and one that is both agreeable and harmless.

Griswold's Hy-Nap Mouth Bath exerts the specific action of hydro-naphthol against the bacterium of Pyorrhoea-Alveolaris and will be found most effective in all irritated conditions found in the mouth.

A liberal sample of Hy-Nap as prepared from the original formula of Dr. Hector Griswold together with literature and comparative bacteriological tests will be sent on request to Dentists in the U. S.

HY-NAP CHEMICAL CO., Inc.

2096 Broadway - - Ne





A scientific alloy, yielding perfect results in all casting operations, particularly indicated in and recommended for

Large Root Restorations Inlays and Posterior Crowns Backings Cast to Porcelain

Continuous use by many careful dentists and repeated experiments, carefully checked and compared, have demonstrated the usefulness and reliability of ACOLITE for all purposes for which it is sold.

Dentists who "shied" at it when first offered, have become steadfast friends, every test but confirming the truth of the claims make for it.

Does Not Blacken Nor Change Color

in any mouth. ¶ Harder and tougher than amalgam, it is capable of accurate adaptation. It is remarkably stable, free from expansion and contraction, does not "flow" under masticatory stress, and has ample edge strength.

Does Not Check Porcelain

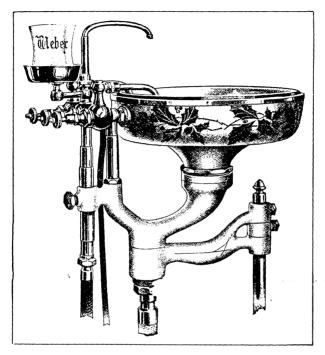
Fusing at about 420° it may be used for backings cast direct to facings without danger of checking the porcelain.

A trial ingot will convince the most skeptical.

May be had from all first-class dealers or direct from the manufacturers.



T발 "WEBER FORTY"



The most Beautiful and Substantial Cuspidor made.

Blown Lead Glass Bowl with no creases or laps.

Requires less than one-half the amount of water to operate than any other fountain cuspidor.

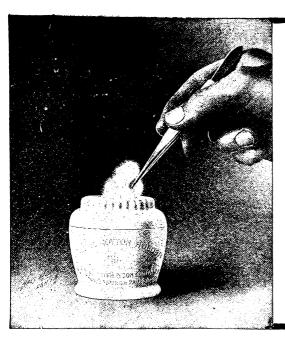
WILL NOT OVERFLOW

All secretions dropped into the bowl are carried out the shortest possible route to the sewer, and not left floating around in sight of the patient.

NO LEAKY VALVES TO CONTEND WITH

The Weber Dental Manufacturing Co. CANTON, OHIO, U. S. A.

Write for Catalog descriptive of the Weber Fountain Cuspidors at prices ranging from \$25.00 to \$40.00.



Aseptic Cotton Holder

A paper carton containing absorbent cotton isn't much of an ornament to your bracket table. Nor is it much of a convenience.

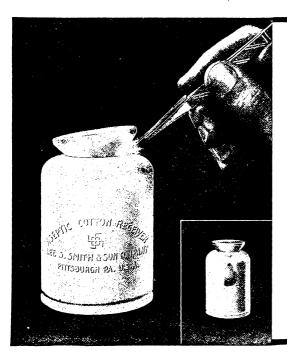
The Aseptic Cotton Holder

is clearly indicated in the offices of particular practitioners. It looks clean—it is clean. The minute your patient sees what it is he is prejudiced in your favor.

Made in two pieces only, of snowy white opal glass.

Price \$1.00

LEE S. SMITH & SON CO. PITTSBURGH, PA.



THEY WON'T TELL YOU

Your patients have a perfect right to be particular.

When they see you throwing soiled cotton on the floor, they won't tell **you**, but prospective patients will hear something like this:

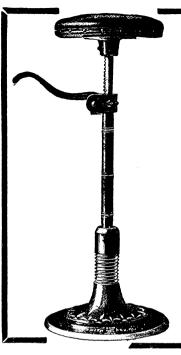
"Don't go to Dr. Blank—he's careless," etc.

USE THE

Aseptic Cotton Receiver and your patients will know that your methods are clean.

\$1.00 is the Price

LEE S. SMITH & SON CO. PITTSBURGH, PA.



DRAFTY FLOORS

are a menace to the dentist, who stands all day on his feet. This is just one reason for buying and using

The Automatic Operating Stool

You can sit on it and put your feet on the base of your chair—just so they're off the floor—thus preventing the discomforts arising from the cold drafts of the winter months.

Needless to say, your body is at rest also.

The Price is \$15.00

Lee S. Smith & Son Co. Pittsburgh, Pa.

Efficiency with the Extras Cut Out

YOU know how costly it is to install the ordinary compressed air system for your laboratory work. It takes many a month of nose-to-the-grindstone labor for you to realize on your investment. If you buy the

Vernon Rotary Compressor

you are virtually in possession of a compressed air system, but the cost is negligible.

There are no extras—it is **all efficiency.** Just couple it up to your lathe, and go to it. Compared with the Vernon, the foot-bellows and mouth blowpipe are mediaeval.

Price \$7.50. Ten days' free trial if you wish.

Lee S. Smith & Son Co. Pittsburgh, Pa.



Doctor: Do You Know of "KELENE"

(PURE CHLORIDE OF ETHYL)

FRIES BROS., MANUFACTURERS, 92 READE ST., N. Y

Do You Know that it is

The Best Local Anaesthetic

Also as Adjuvant to Ether

In General Anaesthesia

or must you guess?

Why Guess when you can Know

SOLE DISTRIBUTORS FOR THE UNITED STATES

MERCK & CO., NEW YORK, RAHWAY, St. Louis

Two-thirds of the American dentists find the Little Giant Post Puller a necessity

They have found the Little Giant necessary because it makes the operation of extracting broken-off crown pins or posts easier for the dentist and patient.

The Little Giant removes crown pins in the average time of three minutes, without requiring the use of a drill, without pain, and without any possibility of injuring the root.

Your time is too valuable to warrant your using antiquated, laborious, uncertain and painful methods. The Little Giant eliminates all risk and pain, and saves its cost in a few operations. Obtain one through your supply house.

Price Complete, \$3.00

Recommend and sell KURORIS to your patients—it helps clean the teeth and keep them in good condition.

F. H. SKINNER



7 W. Madison Street, Chicago

FRIPLE CUSP CROWN VALUE

COUNTS

WITH ALL THE PEOPLE ALL THE TIME.

WHEN MENTION THE

ORDERING TRIPLE CUSP





SAML. G. SUPPLEE & CO.

1 UNION SQUARE

NEW YORK

REPRESENTED BY

Crown Dental Laboratory, Chicago, Ill. Fenker Dental Specialty Co., Cleveland, Ohio

Lancaster, Pa., Dec. 2, 1912.

Dear Doctors:

THE SIMS HYDRAULIC ENGINE CO.

is going to tell you something, and we have engaged this space for the period of one year for the purpose of telling it to you.

We are going to tell you about the efficiency of the Sims Hydraulic Engines. We are going to tell you why the world has never produced a better engine than the Sims Hydraulic Engine. We are going to tell you about the economy of the engine, both as to first cost and operating expense. We are going to tell you about the durability and long life of the engine. We are going to give you a glimpse into the secrets of the manufacture of the engine. We are going to tell you why we have not departed from water as a motive power for dental engines, but on the other hand advocate it more strenuously today than ever.

These are a few of the many things that we propose to tell you about the Sims Hydraulic Engine in this space during the next year. We ask you to read it with care, and if you are then interested consult us, and we will satisfy you that your office, without one of our outfits, lacks something in the efficiency of its equipment.

Yours very truly,

SIMS HYDRAULIC ENGINE CO. Lancaster, Pa., U. S. A.

FIND OUT ABOUT THE UNIT WHEN YOU BUY AN ELECTRIC STERILIZER

Do not buy an electric sterilizer in which solder is used in the construction of the unit, and which is not guaranteed if current is turned on when unit is not immersed in water. THE UNIT IN THE STAMPER ELECTRIC STERILIZER, WATER AND SPRAY HEATER CONTAINS NO SOLDER.

Do not buy an electric sterilizer in which the consumption of electricity is high. THE STAMPER ELECTRIC STERILIZER, WATER AND SPRAY HEATER USES ONLY 150 WATTS PER HOUR. This is less than any other electric sterilizer now on the market uses. Most of the others consume from 350 to 450 watts per hour.

GUARANTEE

The units in all electric sterilizers sold by us on and after July 1, 1912, are unconditionally guaranteed by us for twelve months from the time they are sold to the dentist.

Write us for full information

Paducah Sterilizer Mfg. Co., Incorporated

Paducah, Ky.

"Monarch" VISIBLE ELECTRIC STERILIZER For Dentists DON'T BE TOUCHY!

when your patients ask how you clean and sterilize your instruments which go into the mouth!

> They are entitled to know Save Explanation and Demonstrate

Place the "Monarch" right in sight and allow your patients to see it operate.

They want it

Durable!

Ouick!

Sure!

Will Last a Life Time

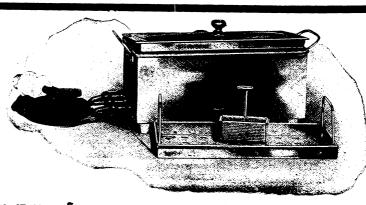
Guaranteed for Two Years

Send for catalogue On sale by all Supply Houses

MONARCH ELECTRICAL MANUFACTURING CO. 1104-1106 Prospect Ave. S. E. **CLEVELAND**

The **BEST** Electric Dental Sterilizer

No. 430



BECAUSE IT IS DESIGNED TO MEET THE SPECIAL NEEDS OF THE BUSY PRACTICAL DENTIST. LARGE TRAY FOR OTHER INSTRUMENTS AND A * SMALL SILVERED BASKET FOR BURS, ETC. FINISH IS POLISHED COPPER OR NICKEL PLATE. COVER HINGED-EBONY KNOB TO TAKE HOLD OF SIMPLE - DURABLE - PROMPT IN OPERATION.

Ask L. D. Caulk, Dental Depot, Inc., Phila., Pa., or your dealer The Prometheus Electric Co., 230 East 43rd St., New York City

Salvitae

The Eminence of Its Advocates

The eminence of its advocates is unassailable proof of the incomparable value of Salvitae in the treatment of pyorrhea alveolaris, gingivitis and other dental affections of constitutional origin.

SALVITAE has the unqualified indorsement of those who have achieved world-wide distinction in dental science. In the most positive terms, these men advocate the employment of the preparation in the treatment of pyorrhea alveolaris, gingivitis and other dental disorders arising from uratic deposits in or about the alveoli.

Salvitae

SALVITAE excels other uric-solvents and eliminants, in that its action is decidedly more prompt, agreeable and uniform. Moreover, its prolonged administration does not give rise to gastric or intestinal disturbance.

SALVITAE is an effervescent salt of delightful flavor. The dose is from one to four teaspoonfuls, in a glassful of water, three or four times daily.

Samples and a booklet embracing the opinions of the most eminent members of the dental profession sent on request.

AMERICAN APOTHÉCARIES COMPANY, ASTORIA, GREATER NEW YORK.

The Prevention of Dental Decay

calls for careful attention to the eliminative functions, since it has been definitely shown that the accumulation in the system of the poisons produced by intestinal putrefaction leads to all manner of dental disease. For securing bowel regulations and thorough intestinal elimination, there is nothing that the dentist can employ with such complete satisfaction as

Prunoids

(Edible Tablets)

This noteworthy preparation is not only surprisingly effective in its capacity for stimulating bowel activity, but it i remarkably free from all disagreeable after-effects such as griping, reactionary constipation, or tendency toward hemorrhoids. In fact, its whole action is physiological, since it produces its effects solely through stimulating the natural intestinal processes.

Clinical experience has demonstrated conclusively that Prunoids are especially serviceable to the dentist in his efforts to restore and maintain hygienic conditions of the body.

Samples on request

For sale by all druggists

THE SULTAN DRUG CO. St. Louis, Mo.

Do You Use Cotton Dental Rolls?

JOHNSON & JOHNSON'S

Probably you do. We may safely say that we know that the majority of the readers of this journal do use them, but there are still a few who do not, possibly because they have not given the subject any serious thought. Those dentists who do use Cotton Rolls are steadily using more rolls in their everyday work.

Finding how perfectly they meet their requirements in preserving dryness for simple operations, and becoming more experienced in their application, they find that an increasing number of operations can be done in a more satisfactory way with Cotton Rolls than to apply the dam.

They save time and expense to the operator and discomfort to the patient, gratitude for which is usually frankly expressed at the time. Quickly applied without pain, and no chance of injury to the gums, so frequently caused by rubber dam clamps and ligatures.

Free sample of Dental Rolls and booklet telling how to use them, sent by mail upon request.

Sold by leading Dealers in Dental Supplies in every country in the world.

Specify Johnson & Johnson's

JOHNSON & JOHNSON New Brunswick, N. J., U. S. A.

"ANTIDOLORIN"

STRICTLY PURE ETHYL CHLORIDE FOR LOCAL AND GENERAL ANAESTHESIA



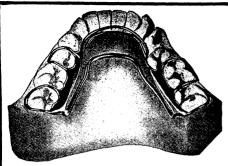


Glass Tubes (Graduated)
Put up in 10, 30, 60, 80 & 100 grams

Metal Tubes
Put up in 50 cc. & 100 grams

Perfectly automatic; no waste, no screws, no valves.
All tubes are sterilized before being filled.
Empty metal tubes are credited.
Liberal discounts to jobbers.

Manufactured by FRANCO-AMERICAN CHEM. WORKS, CARLSTADT N. J.



JACKSON'S REGULATING APPLIANCES

Are time-savers for Dentists; sees patient once in two weeks. Sanitary; removable by patient for clean sing.

Sanitary; removable by patient for cleansing.
Painless; constantly working.
No cement used to hold in position.
Can be designed for all irregularities. Price \$5.00 each.

MADE BY

DR. C. S. TUTTLE

4822 Baltimore Ave., W. Phila., Pa. SPECIALIST IN JACKSON'S REGULATING APPLIANCES

The Whole World

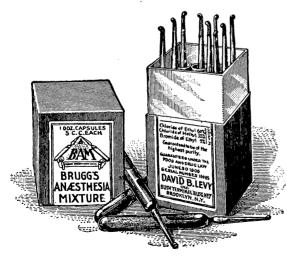
is your market when you advertise in

Items of Interest

"We have received many answers from our former ad, and feel confident that the members of the dental profession are receiving great benefit from the reading of the Items of Interest, and we are looking for better results this season than ever before. We are not only receiving inquiries from this country, but from foreign countries in regards to our goods."

American Water Supply Co.

Brugg's Anaesthesia Mixture



The Mixture of Ethyl Chloride, Methyl Chloride and Ethyl Bromide.

NO EXPERIMENT

In use over five years

1,500,000 Administrations

NO FATALITY

Only ONE HALF the price For sale at any good dealer

David B. Levy, Inc. BROOKLYN, N. Y.





DNITTON JOVEL

Larger and Smaller Adult.

Child's and Smallest

and our latest brush

The Rolling Special for Pyorrhea,

Made by

G. B. KENT & SON

LONDON, ENGLAND

Literature and price list on application.

> Box 173B Back Bay, BOSTON, MASS.

> > Samples 25c each



ANTISEPTIC ASTRINGENT PROPHYLACTIC

TRY IT ON THE NEXT PATIENT TROUBLED WITH BLEEDING OR SPONGY GUMS, PYORRHEA GINGIVITIS.OR ANY ULCEROUS MOUTH AFFECTION. ITS REME-DIAL ACTION WILLSURPRISE YOU. PROFESSIONAL PACKAGE **GRATIS ON REQUEST.**

VERNAS CHEMICAL CO. WEST 36THSTREET.

APEX TREATING BROACH

Notched -> D

BHOOTH FINE Patented April 9, 1912

For placing cotton at the Apical foramen packing Pyorrhea pockets and Fistulas. 75c. For picking up D. D. Conview

Patented April 9, 1912 Wrap cotton tightly on Broach. Release used cotton by twisting back and forth between fingers.

A New Orleans Dentist Writes:

"I understand you are the man who is making the best treating Broach there is. I have used some of them and I know. The little crescent in the end is a wonder. Please send me what inclosed money will buy."

Chicago reference: Any up-to-date dentist.

Order From Your Dealer

Dr. L. L. Funk.

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Tissues injected with Alvatunder heal quickly and surely owing to its powerful antiseptic properties. It has a clean record of twenty years' standing. Sold by all dealers.

THE HISEY DENTAL MFG. CO., ST. LOUIS, U. S. A.

Always Pulling

There has not been a working day in the past five years that we have not received requests for catalogs or information concerning our goods from dentists who have mentioned Items of Interest as the source of their inquiry. We think this is a pretty good record."

A. C. CLARK & CO.

PYORRHEA

We invite the careful consideration of the dentists to the merits of Sal Hepatica in the treatment of Pyorrhea, in Constipation and Auto-intoxication, and to its highly important property of cleansing the entire alimentary tract, thereby eliminating and preventing the absorption of irritating toxins and relieving the conditions arising from indiscretion in eating and drinking. Write for free sample,

BRISTOL-MYERS CO.



Manufacturing Chemists



The Teter Apparatus.

THE TETER APPARATUS No. 2 is the most scientifically developed and thoroughly equipped apparatus for the administration of Nitrous Oxide and Oxygen ever invented.

¶ There is no guess work with the Teter Apparatus. Results are absolutely sure and certain.

¶ Continued anesthesia is as easily maintained with the Apparatus and Nasal Inhaler as it is with the Apparatus and Face Inhaler.

¶ Most dentists are familiar with what can be done during the analgesic stage as produced with the Teter Apparatus and many are eliminating pain entirely from all their dental work by this method.

¶ Give Nitrous Oxide and Oxygen WARM to obtain a perfect and safe form of anesthesia which is not accompanied by nausea or other bad after effects.

¶ The TETER APPARATUS is being used by hundreds of dentists and is considered by them as being the greatest practice builder in their offices.

I For literature and further particulars write us.

then using Teter Nitrous only and Oxygen with

THE TETER MANUFACTURING CO.
WILLIAMSON BUILDING CLEVELAND, OHIO



Aluminum Case

INVESTIGATE

WE don't ask or expect you to buy the "EUREKA" retainer on mere advertising claims—but we do ask you to investigate.

Its principle and construction of attachment are correct—nothing to give you trouble in after years. We urgently invite comparison of attachment with others.

"By every test, it's far the best"

Upper or Lower, \$2.00 per Box of Six

EUREKA SUCTION CO. -

Loudonville, Ohio

DENTAL LAWS CONDENSED

By Alphonso Irwin, D.D.S.

HARVARD UNIVERSITY DENTAL SCHOOL EUGENE H. SMITH, DEAN

Boston, April 25, 1912.

Dear Doctor Irwin: "Your work must have been very arduous and has brought forth valuable information. We want to profit by these results."

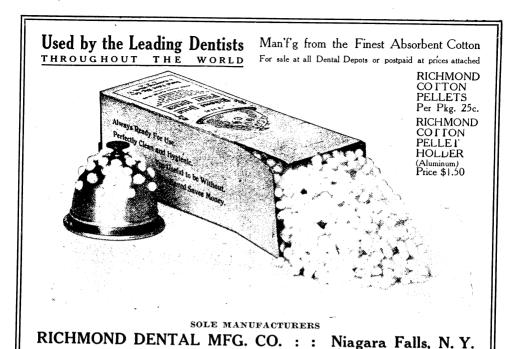
Very truly yours,

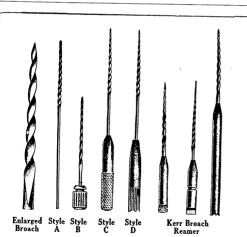
[Signed] EUGENE H. SMITH.

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425 Cooper Street, Camden, N. J.

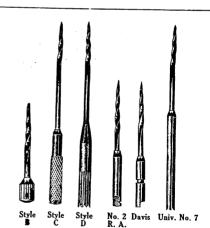




KERR BROACHES

A tapered spiral with sharp-cutting edge, tough and flexible. The most efficient method for root canal treatment and essential for all good canal work.

FIVE SIZES



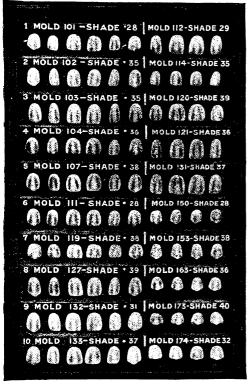
KERR TAPERED CANAL REAMERS

Designed to enlarge the opening of the root canal after it has been opened up with the Kerr Broach. A uniform taper and sharp-cutting edge.

FOUR SIZES

Small, Medium, Large, Ex. Large All Styles and Sizes......Each .40 (Style D 4½" Handle)

Manufactured by DETROIT DENTAL MFG. CO., Detroit, Mich., U. S. A.



HALF ACTUAL SIZE

A Quantity Lot of Detached-Post Crozvns

In response to frequent requests by regular users of S. S. White Detached - Post Crowns we announce—

A Wood Tray containing 100 crowns, without Posts, for \$20.00.

50 Silver-Platinum Posts (lot price) \$5.00.

The tray is $5\frac{1}{4} \times 8$ inches, with carriers which can be lifted out to permit the crowns to be closely matched with the teeth in the mouth.

The crowns are selections of our most popular forms; no extremes in shade or shape, but a considerable variety in both, to cover the average requirements of the busy dentist.

You will save labor and time, as well as money, by purchasing a tray lot. You will also eliminate, to a large extent, the necessity for impressions and models. Shades not available in certain sizes can be ordered according to mold number indicated, and the advantage of personal selection assured.

For those who do not know the S. S. White Detached-Post Crown, let us say that after seven years of extended, ever-growing use, it is commonly regarded as the best separate-post crown at the service of the dentist.

The attractive Tray Rate offered is also subject to our Cash Discounts. You can make your own selection of Crowns at the same price if you prefer a different assortment.

The S. S. White Dental Manufacturing Co.

Philadelphia Atlanta Toronto New York Rochester Montreal

Boston New Orleans San Francisco Chicago Cincinnati Oakland Brookly**n** Berlin Los Angeles



*5*0\$ PER PACKAGE

A NEW COMBINATION OF HIGH QUALITY AND LOW PRICE

A root-cand cleaver of a degree of excellence and uniformity of quality heretofore unknown, at the price of vastly inferior instruments.

This new price of FIFTY CENTS is only made possible by the completion of a plant capable of producing assuredly perfect cleaners in large quantities.

THE S. S. WHITE DENTAL MFG. CO.

Every Sound Reason Approves OF THE USE OF "REVELATION" BURS

If you consider only yourself, your convenience, your time, in excavating, you will use "Revelation" Burs; they cut faster, smoother, more exactly, than any others, and besides, are durable.

If you consider your Patients' feelings also, the case for "Revelation" Burs is still stronger. Because of their rapid, smooth cutting, they give the minimum of pain. A new "Revelation" Bur, run with the high speeds so easily attained with the electric engine, is a real obtundent.

Ideal in form, perfect in work, economical to use. \$1.00 the dozen up. Quantity rates in booklet No. 1127,—free on request.

The S. S. WHITE DENTAL MFG. CO.

Philadelphia Atlanta Toronto New York Rochester Montreal

Boston New Orleans San Francisco Chicago Cincinnati Oakland Brooklyn Berlin Los Angeles

GOLD SOLDERS

ASK THE DENTIST OR MECHANIC
WHO IS USING OUR SOLDERS

THE BEST AND CLEANEST FLOWING TO BE HAD PRICES RIGHT SPECIAL QUANTITY RATES

No. 22 Solder

No. 16 Solder No. 14 Solder

No. 20 Solder No. 18 Solder

Coin Solder

Silver Solder

ALL TO BE HAD ALSO IN WIRE FORM

INLAY GOLD

24 Kt. in 2 Dwt. Buttons 24 Kt. with 5% Platinum

FILLING GOLD

Foil No. 4, 5, 6, 30 and 60 Cylinders No. ¼, ½, 5%, ¾, 1, 1½ and Ass't

in $\frac{1}{32}$, $\frac{1}{16}$, $\frac{1}{10}$ and $\frac{1}{8}$ Vials SPECIAL RATES IN OZ. LOTS

GOLD PLATE

24 Kt.

22 Kt. Soft, Medium or Hard

20 Kt. Plate or Wire

18 Kt. Plate or Wire

CLASP PLATE or WIRE

22 Kt. Special for Backing

18 Kt. Special for Backing

COIN GOLD PLATE

22 Kt. Shells or Disks

PLATINUM

Foil, Extra Soft, 1/1000, 1/2000 Wire 3% to 30% Iridium

SCRAPS and FILINGS

BOUGHT FOR CASH OR IN EXCHANGE

Sweeps Refined

JULIUS ADERER

MANUFACTURER

101 West 42nd Street

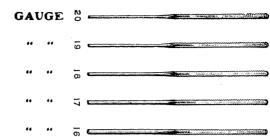
NEW YORK

Branches: Brooklyn, N. Y.; Seattle, Wash.

Orthodontia Appliances in Platinum Gold

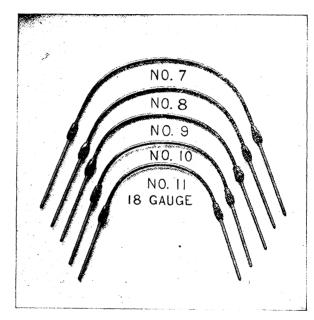
Patented Nov., 1909

Illustrating the different gauges of our Expansion Arches, all having one size thread, flat and smooth on two sides.



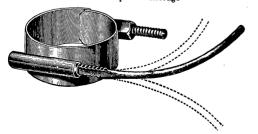
EXPANSION ARCHES

With middle section gauges, 16, 17, 18, 19 and 20 gauge, and in lengths from 43/4 inches down to 3½ inches. All interchangeable and fitting either round or oval buccal tubes.



ANCHOR BANDS, ENLARGED (Double Size)

With Round Tube for Simple Anchorage



With Oval Tube for Stationary Anchorage





MANUFACTURED BY

JULIUS ADERER, 101 West 42d Street, New York

It Doesn't Cost Any More To Use the Best Solders

A skillful gold worker recently made the band of a molar twopiece gold crown and computed the extra cost to him by using Ney's Gold Solders rather than some competition solders offered at lower prices.

He soldered the band, then the cap to the band, using Ney's 22k gold plate and Ney's Solder for 22k plate. His report is as follows:

"I feel sure it didn't cost me any more to solder the band and band and cap with Ney's Solder for 22k plate, because I was able to use extremely small particles, much smaller than I could pick and place with tweezers. I used a No. 3 Sable brush, painted a little flux along the joint, laid a tiny piece of solder across the seam inside the band, applied gentle heat on the outside and soon had a beautiful and invisible joint. The tiny piece of solder flowed clear through the joint. My experience with lower grade solders shows that they will not flow this way, that I must use more solder, and that I don't get as good a joint."

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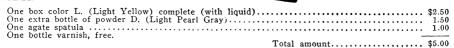
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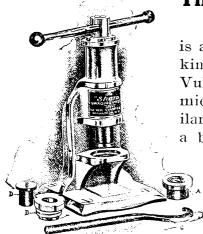
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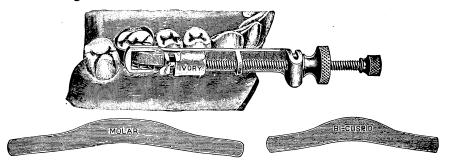
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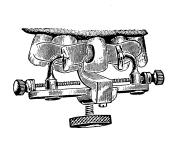
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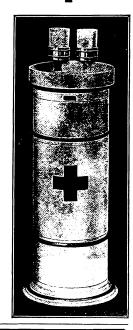
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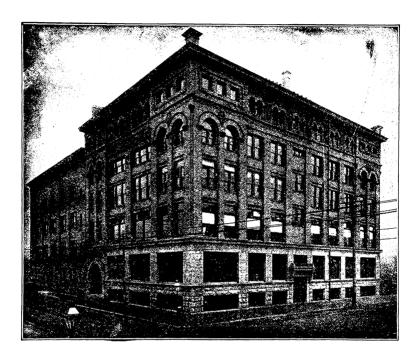
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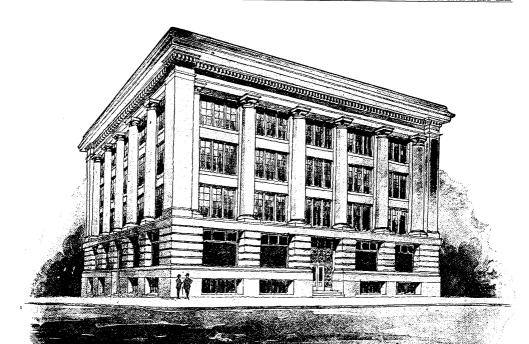
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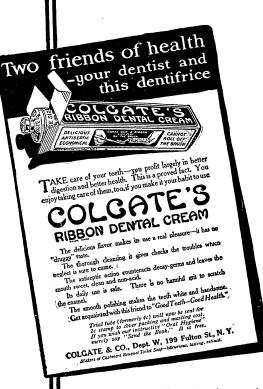
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